

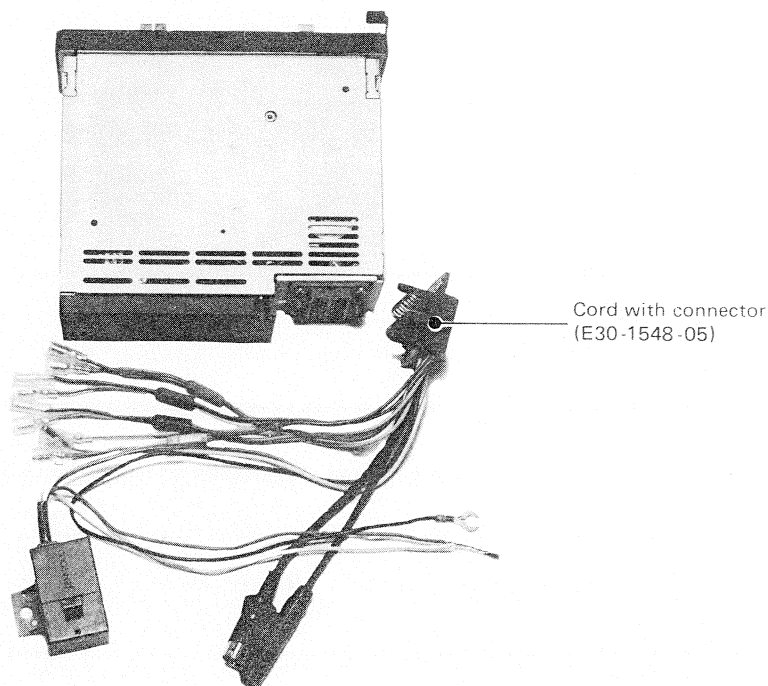
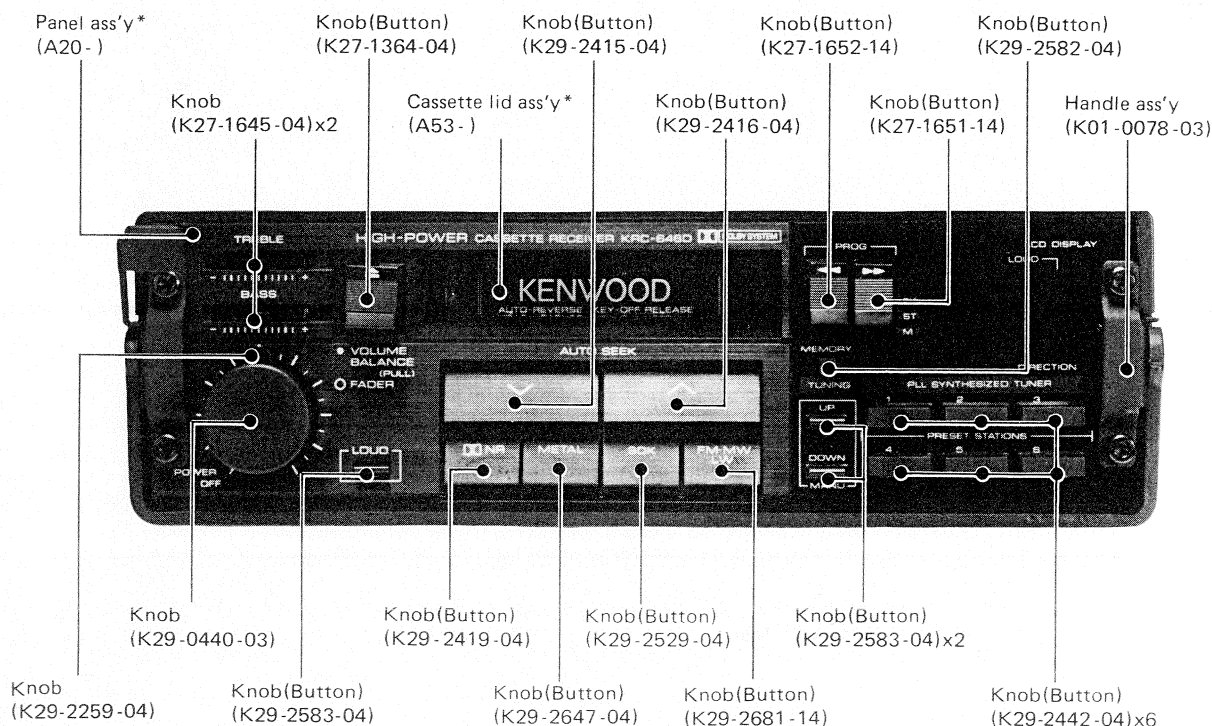
STEREO CASSETTE RECEIVER

# KRC-646D/L

## SERVICE MANUAL

# KENWOOD

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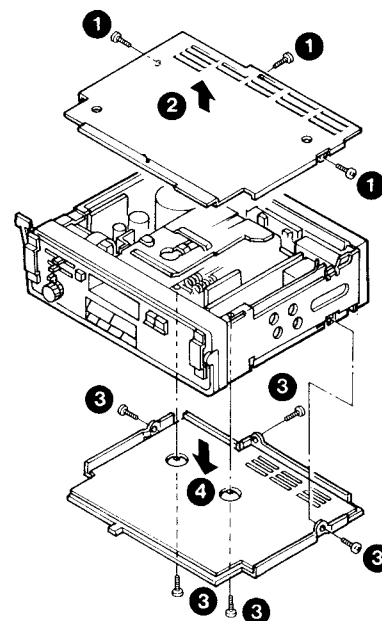
\* Refer to parts list on page 43.  
Photo is KRC-646D.

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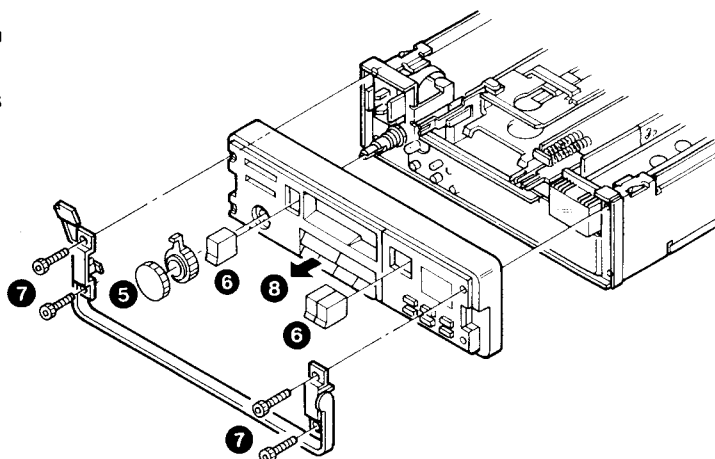
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## DISASSEMBLY FOR REPAIR

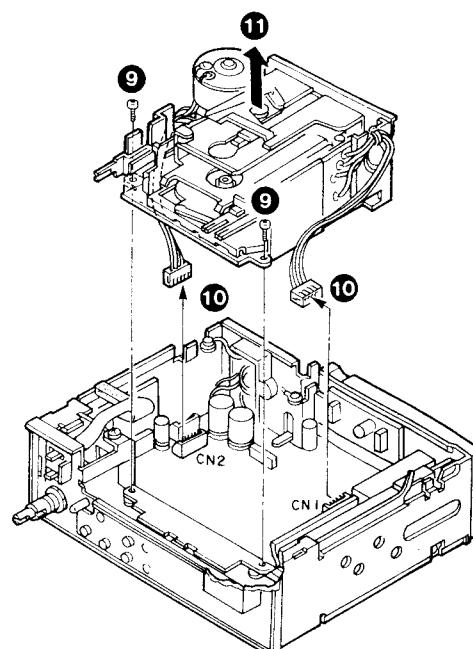
1. Remove three screws retaining the top cover (1).
2. Remove the top cover in the directions of arrows (2).
3. Remove five screws retaining the bottom cover (3).
4. Remove the bottom cover in the directions of arrows (4).



5. Remove volume knob (5).
6. Remove eject and FF. REW. knob (6).
7. Remove four screws retaining the handle with a hexagon wrench (7).
8. Remove the front panel in the directions of arrows (8).

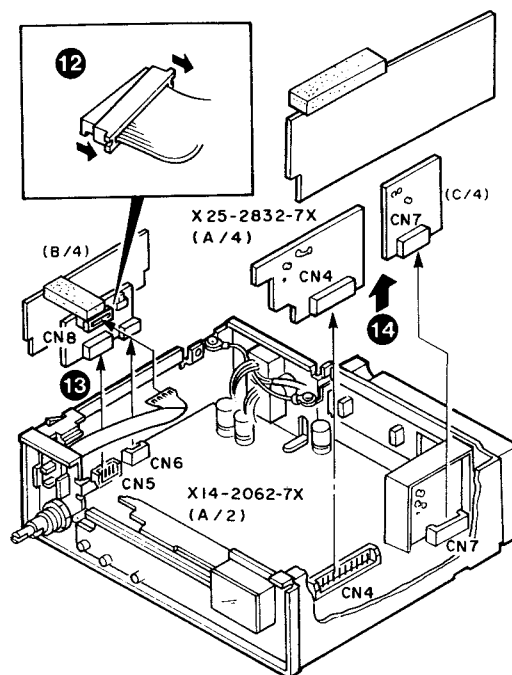


9. Remove two screws retaining the mechanism ass'y (9).
10. Extract the connectors (CN1, 2) of the synthesizer unit (X14-2062-7X) (10).
11. Remove the mechanism ass'y in the directions of arrows (11).

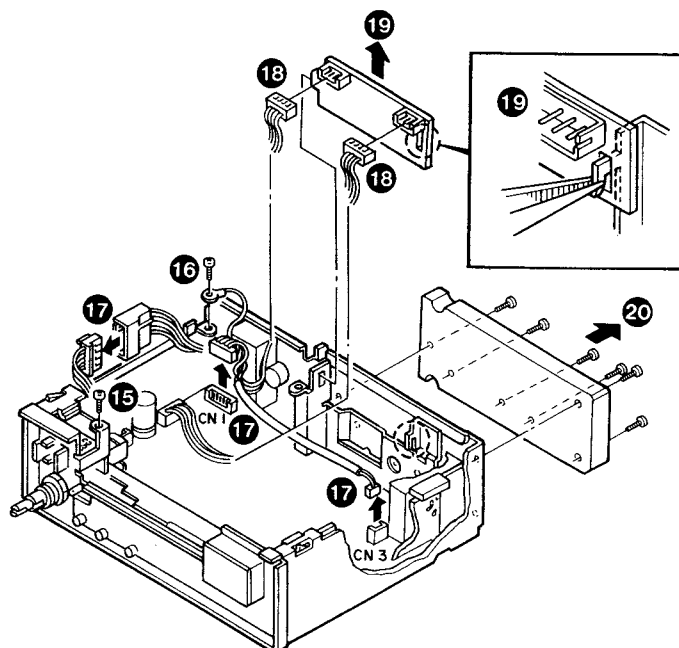


## DISASSEMBLY FOR REPAIR

12. Remove the flexible PC board from the connector (CN8) in the direction of the arrows ( 12 ).
13. Extract the connectors (CN5, 6) of the PC board (X25-2832-7X) (B/4) in the direction of the arrows ( 13 ).
14. Extract the connector (CN4) of the PC board (X25-2832-7X)(A/4) and the connector (CN7) of the PC board (X25-2832-7X)(C/4) in the direction of arrows ( 14 ).

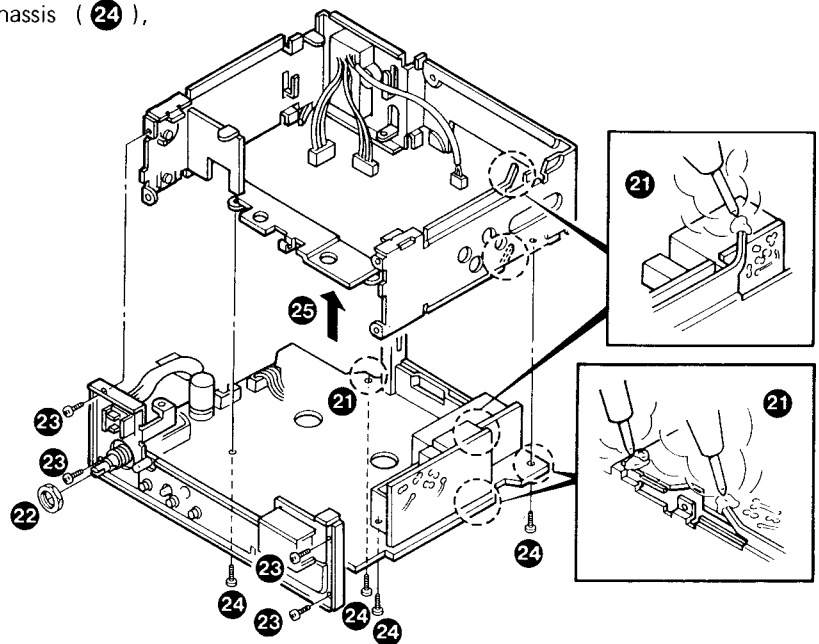


15. Remove the screw retaining the sub-chassis ( 15 ).
16. Remove the screw retaining the ground lead wire ( 16 ).
17. Extract the connectors (CN1, 3) of the Synthesizer unit (X14-2062-7X), then extract the connector in the direction of the arrows ( 17 ).
18. Extract the two connectors of the PC board (X25-2832-7X)(D/4) ( 18 ).
19. Straighten the hook of the mounting hardware in the right side of the PC board (X25-2832-7X)(D/4), then remove the unit ( 19 ).
20. Remove the six screws retaining the heat sink and remove the heat sink in the direction of arrow ( 20 ).



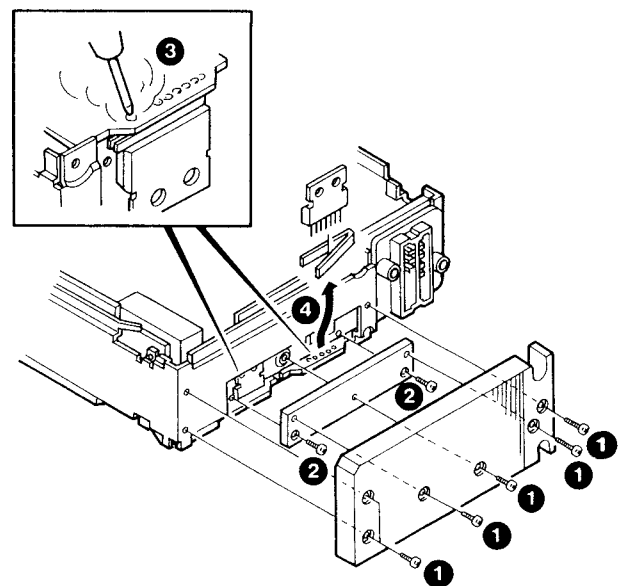
## DISASSEMBLY FOR REPAIR

21. Unsolder the four sections of the component/foil side of the PC board ( 21 ).
22. Remove the nut retaining the volume knob ( 22 ).
23. Remove the four screws retaining the sub-chassis ( 23 ).
24. Remove the four screws retaining the Synthesizer unit (X14-2062-7X) and the main chassis ( 24 ), then lift the main chassis ( 25 ).

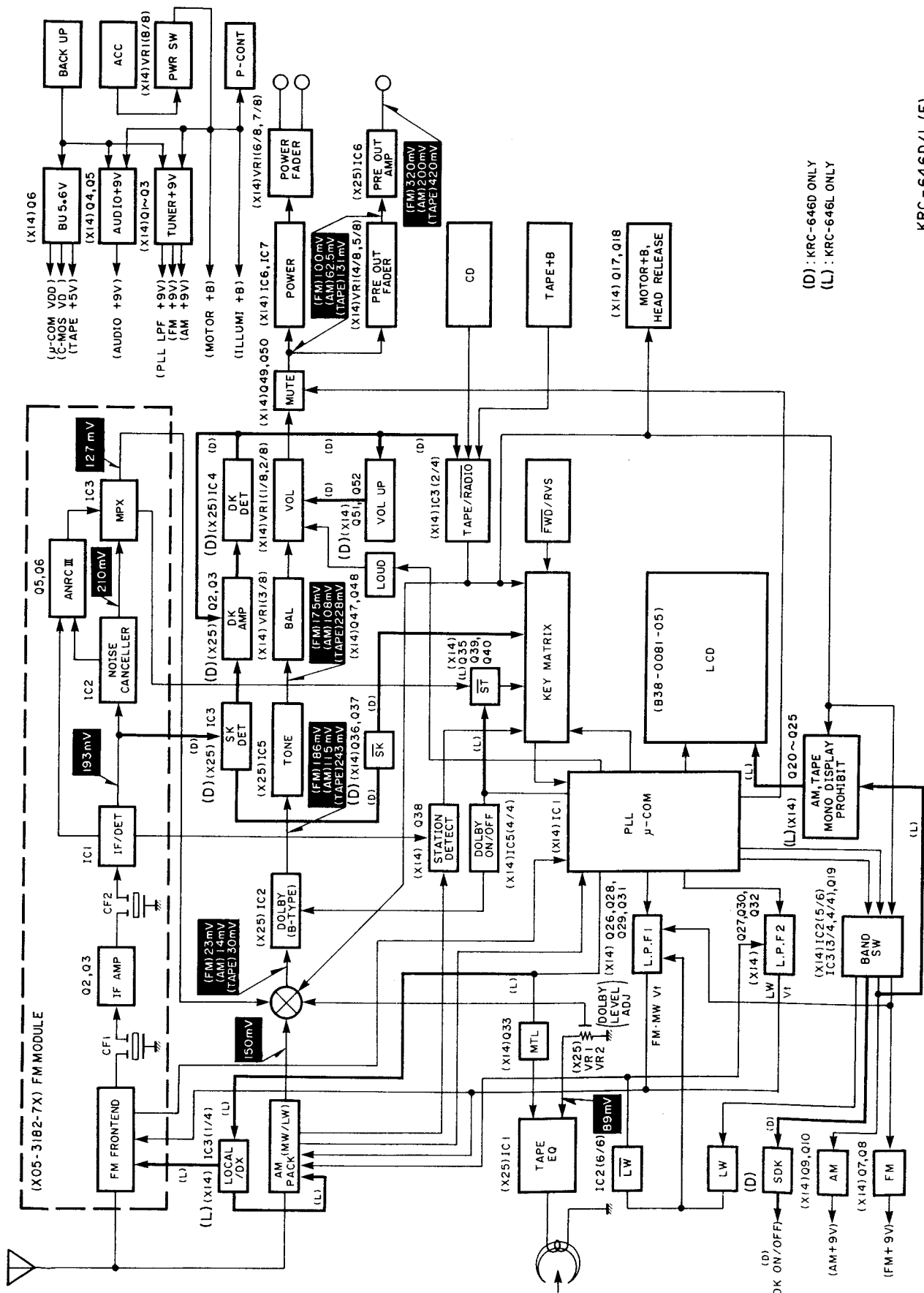


### IC REMOVING FOR THE REPLACEMENT

1. Remove the six screws retaining the heat sink ( 1 ).
2. Remove the two screws retaining the spacer ( 2 ), then remove the spacer.
3. Unsolder the IC from the foil side of the PC board ( 3 ), then remove the IC in the direction of the arrow ( 4 ).



## BLOCK LEVEL DIAGRAM



KRC-646D/L(E)

## CIRCUIT DESCRIPTION

## Description of Components

## TUNER UNIT (X05-3182-70, -72)

Component	Use/Function	Operation/condition/compatibility
IC1	FM IF Detection	
IC2	Noise Canceller	
IC3	MPX	
Q1	LOCAL/DX SW	
Q2,Q3	IF Gain	
Q5	ANRC Buff.	
Q6	CRSC Driver	

## SYNTHESIZER UNIT (X14-2062-7X)

KRC-646L: -70, -72 KRC-646D: -71

Component	Use/Function	Operation/Condition/Compatibility
IC1	PLL synthesizer & microprocessor	
IC2(1/6)	Inverter gate	<b>L</b> : MONO/STEREO switch control. <b>D</b> : Band switch inhibition circuit in SDK mode during TAPE operation.
IC2(2/6,3/6)	Inverter gate	Mute OFF time delay circuit of IC1 MUTE output.
IC2(4/6)	Inverter gate	Mute drive output of TAPE equalizer output stage and MUTE signal inhibition circuit from the cassette mechanism in RADIO mode.
IC2(5/6)	Inverter gate	AM + B switch control.
IC2(6/6)	Inverter gate	MW/LW select, and LW PLL LPF select switch.
IC3(1/4)	AND gate	LO/DX select switch.
IC3(2/4)	AND gate	<b>L</b> : TAPE/RADIO select switch. <b>D</b> : In SDK mode during TAPE operation, this also becomes TAPE/BAND select switch by DK interruption.
IC3(3/4)	AND gate	<b>L</b> : MONO key, <b>D</b> : DK ON/OFF switch.
IC3(4/4)	AND gate	MW/LW select control and FM/MW PLL LPF select switch.
IC4(1/4)	AND gate (IC1 Key matrix)	TAPE/RADIO key input, H : TAPE mode, L : RADIO mode.
IC4(2/4)	AND gate (IC1 Key matrix)	SK key input. "H" : No SK input, "L" : SK input is present.
IC4(3/4)	AND gate (IC1 Key matrix)	ST key input. "H" : No ST input, "L" : ST input is present.
IC4(4/4)	AND gate (IC1 Key matrix)	SD key input. "H" : No SD input, "L" : SD input is present.
IC5(1/4)	AND gate (IC1 Key matrix)	FWD/REV key input. "H" : Reverse, "L" : Forward.
IC5(2/4)	AND gate	<b>L</b> : Dolby key. <b>D</b> : SK ON/OFF switch. In SDK mode, Seek when DK is OFF. SK is OFF when lower than stop level, and ON when more than that.
IC5(3/4)	AND gate	<b>D only</b> : In SDK mode during TAPE operation, BAND switch inhibition circuit.
IC5(4/4)	AND gate	Dolby ON/OFF switch.
IC6,IC7	BTL Power amp.	
Q1~Q3	+ 9V AVR (TUNER + 9V)	+ 9V constant voltage power supply for TUNER circuit.
Q4,Q5	+ 9V AVR (AUDIO + 9V)	+ 9V constant voltage power supply for AUDIO circuit.
Q6	+ 5.6V AVR	+ 5V constant voltage power supply for IC1 and other logic circuit.
Q7,Q8	FM + B SW	In FM mode, turns ON and supplies the power to FM circuit via TUNER + 9V.
Q9,Q10	AM + B SW	In AM mode, turns ON and supplies the power to AM circuit via TUNER + 9V.
Q11,Q12	IC1 CE control	When power switch is turned ON, transmits the "H" signal to IC1 CE pin.
Q13	Mute drive	When power switch is turned OFF (ACC is OFF), drives the Mute circuit.
Q14	Mute drive	Drives the Mute control signal of IC1.
Q15	Mute drive	Drives the Mute circuit when ejecting the tape.
Q16	Mechanism Mute inhibition circuit	Inhibits the Mechanism-Mute in RADIO mode.
Q17,Q18	Motor drive	<b>L</b> : Drives the motor in TAPE mode, and releases the head when power is turned OFF. <b>D</b> : In SDK mode during TAPE operation, releases the head when interrupted by DK.
Q19	AM + B SW control	In TAPE mode, turns AM + B switch OFF.
Q20,Q22,Q24	MONO display inhibition circuit in AM mode	<b>L only</b> : In AM mode, applies IC1 COM2 output to both ends of MONO LCD.
Q21,Q23,Q25	Enables the MONO display in FM mode	<b>L only</b> : In FM mode, makes LCD2 of IC1 connect to LCD pin of MONO LCD, and enables to light the MONO LCD when MONO is selected.
Q26	FM/MW PLL LPF inhibition switch	When LW is selected, shunts the PLL LPF input for FM/MW and inhibits its operation.

## CIRCUIT DESCRIPTION

Component	Use/Function	Operation/Condition/Compatibility
Q27	LW PLL LPF inhibition switch	When FM or MW is selected, shunts the PLL LPF input for LW and inhibits its operation.
Q28	FM/MW PLL LPF gain select	Turns ON when FM is selected, at the same time, the resistance of Q29's emitter is lowered and the input impedance of Q29 is decreased to lower the gain of PLL LPF (Low Pass Filter). When MW is selected, it turns OFF and raises the gain of PLL LPF in reverse way as above. For this operation, compensates the driving ability of the EO output of IC1 to stabilize the operation of PLL LPF.
Q29,Q31	FM/MW PLL LPF	Functions only when FM or MW is selected. Supplies Vt.
Q30,Q32	LW PLL LPF	Functions only when LW is selected. Supplies Vt.
Q33	METAL SW	Turns OFF when METAL is selected.
Q34,Q35	MONO/STEREO switch	<b>L only</b> : Turns OFF when MONO is selected and turns ON when STEREO is selected to control the STEREO circuit of MPX.
Q36,Q37	SK key input control	<b>D only</b> : When SDK mode is selected and SK is present, Q36 is OFF and Q37 is ON. This turns IC4(1/4) output to "L" so that the data "SK input is present" is transmitted to the SK input of IC1. When SK is not present, it executes the operation in reverse way as above. When SK signal is not present for more than 5 seconds, starts SK Seek operation.
Q38	SD Key input control	When ANT input level is more than Seek stop level, Q38 is turned ON. This turns the IC4(4/4) output to "L" so that the data "SD input is present" is transmitted to the SD input of IC1. When ANT input level is lower than the Seek stop level, it executes the operation in reverse way as above.
Q39,Q40	ST key input control	When ST is present, Q39 is turned OFF and Q40 is turned ON, and it turns IC4 (3/4) output to "L" so that the data "ST input is present" is transmitted to ST input of IC1. When ST signal is not present, it executes the operation in reverse way as above.
Q41	TAPE/RADIO select control	<b>D only</b> : In SDK mode during TAPE operation, it is turned ON when interrupted by DK, and outputs "L" signal then turns IC4(1/4) output to "L" and transmits the RADIO select data to change to the RADIO mode. Also, it turns the IC3(2/4) output to "L" and Q18, Q17 to OFF and releases the head. At this time, the output of IC5(2/4) is turned to "L" and makes the SK ON/OFF circuit ON status to inhibits the SK OFF operation by fluctuation of electric field.
Q42	SK ON/OFF control	<b>D only</b> : Turns ON (output : "L") when FM SD signal is high. This turns the output of IC5(2/4) to "L" so that the SK ON/OFF circuit becomes SK ON status. When FM SD is low, it executes the operation so that the SK OFF status is made in similar way as above.
Q43,Q44	MW/LW select	When MW is selected, the output of IC2(6/6) goes "H" and Q43 and Q44 are turned ON, then +9V signal is applied to the BS pin of AM tuner so that the AM tuner is set to the MW mode. When LW is selected, the output of IC2(6/6) goes "L" and the applying of +9V to the BS pin stops by the operation as above, so that the AM tuner is set to the LW mode.
Q45,Q46	DK interrupt switch	<b>D only</b> : When SDK mode is selected, the FM circuit functions even during TAPE operation. For this, Q45 and Q46 control so that the FM output is not output during TAPE operation. During tape play, the output of IC3(2/4) goes "H" and Q45, Q46 are turned ON to shunt the FM output. When interrupted by DK, the output of IC3(2/4) goes "L" and Q45,Q46 are turned OFF so that the FM output signal is output.
Q47,Q48	LOUDNESS switch	When Q47 and Q48 are OFF, LOUDNESS is turned ON. When Q47 and Q48 are ON, LOUDNESS is turned OFF. When LOUDNESS ON is selected, the output of IC1 pin 31 goes "L" and Q47 and Q48 are turned OFF to set LOUDNESS ON.
Q49,Q50	Audio mute	Shunts the output of volume control VR1 (1/8,2/8) when Q49 and Q50 are turned ON.

## CIRCUIT DESCRIPTION

Q49,Q50	Audio mute	Shunts the output of volume control VR1 (1/8,2/8) when Q49 and Q50 are turned ON.
Q51,Q52	Volume UP control when DK interruption	<b>D only</b> : When interrupted by DK signal, Q51 and Q52 are turned OFF and VR3 is inserted between the volume control VR1 (1/8,2/8) and GND so that the volume increasing operation is engaged.
Q53	Power Amp. Mute Drive when CD play	When CD play operation, Q53 is turned ON, then Q55 is turned ON.
Q54	Power Amp. Mute Control when power switch is turned OFF	When power switch (VR1 (8/8)) is OFF and ACC is OFF, Q54 is turned OFF then Q55 is turned ON.
Q55	Power amp. mute	When Q53 is ON or Q54 is OFF, Q55 is turned ON to operate the mute circuit of power amp. consisting of IC6 and IC7.

## ELECTRIC UNIT (X25-2832-7X)

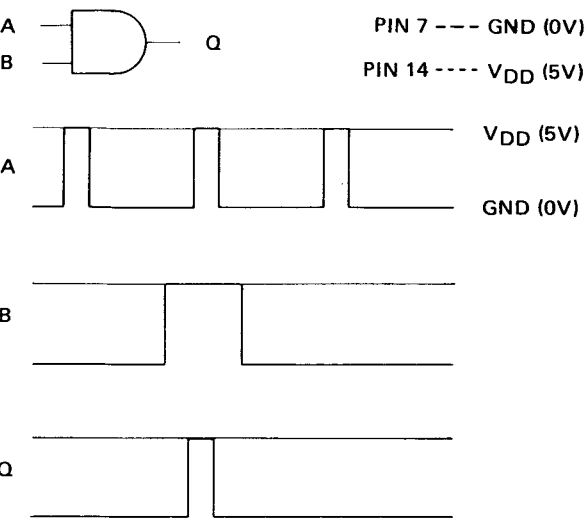
KRC-646L: -70,-72 KRC-646D: -71

Component	Use/Function	Operation/Condition/Compatibility
IC1	Tape Equalizer	
IC2	Dolby B-type	
IC3	SK DET.	<b>D only</b>
IC4	DK DET.	<b>D only</b>
IC5	Tone control	
IC6	DIN amp.	
Q1	Buffer	<b>D only</b> : Isolates the SDK circuit so as not to affect the IF composit signal.
Q2	DK FIL. amp.	<b>D only</b> : Rectifies the waveform of the DK signal.
Q3	Q2 gain select	<b>D only</b> : When DK signal is not present, the output of IC4 pin 6 goes "H". This turns Q4 and Q3 OFF so that the gain of Q2 is set at lower value (IC4 pin 2 input level : 17mV). When the DK signal is present, the output of IC4 pin 6 goes "L", and it turns Q4 and Q3 ON to raise the Q2 gain by approx.10dB to the above value. By this, the DK operation is protected from mistakenly performed by the signal other then DK.
Q4	DK operation control	<b>D only</b> : When DK signal is present, IC4 pin 6 output signal goes "L" and Q4 is turned ON to send the "H" signal to the output. By this signal, TAPE/RADIO select and volume increasing operations, etc. are controlled.
Q5	DK ON/OFF switch	<b>D only</b> : When SDK mode is selected, the output of IC3(3/6) on the X14 board goes "H", and Q5 is turned ON. By this operation, IC4 is set to the DK operation enable status. In the same way, when the SDK mode if OFF, Q5 is turned OFF and IC4 stops DK operation.

## CIRCUIT DESCRIPTION

### AND-GATE For CPU Key Matrix

Operation Description



### CPU Key Matrix Operation

The source clock from the CPU is input to A-input via the AND-GATE at any time to apply the control signal to B-input.

When the signal is input to B-input, the output Q goes high and input as the CPU key input. When the B-input is low level, output Q is always low. Output Q is synchronized with input A.

### Synthesizer Unit $\mu$ -Com: $\mu$ PD 1708G

#### FUNCTION OUTLINE

Receiving frequency, Channel spacing, Reference frequency, Intermediate frequency

#### FM band

Frequency range	Channel spacing	Reference frequency	Intermediate frequency
87.50~108.0 MHz	* 50 kHz	12.5 kHz	10,700

\* MANUAL 25 kHz

#### AM band

Frequency range	Channel spacing	Reference frequency	Intermediate frequency
522~1611 kHz	9 kHz	9 kHz	450 kHz
153~281 kHz	* 9 kHz	1 kHz	450 kHz

\* MANUAL 1 kHz

#### Tuning Function

- Auto Tuning (Sawtooth wave mode)  
Seek Up: Once a station is tuned, it is held tuned.
- Manual Tuning (Sawtooth wave mode)  
Manual Up/Down: Frequency is advanced up or down in steps by pressing the push switch.  
Pressing for a half second or more advances it up or down continuously until the switch is released.
- Preset Memory Recall  
6 stations on each FM, MW, and LW band can be preset independently with the 6 buttons. The last station is stored in memory for each band when power is turned off.

#### Tape Function

- Tape running indicator
- METAL control

#### Radio Function

- MONO control

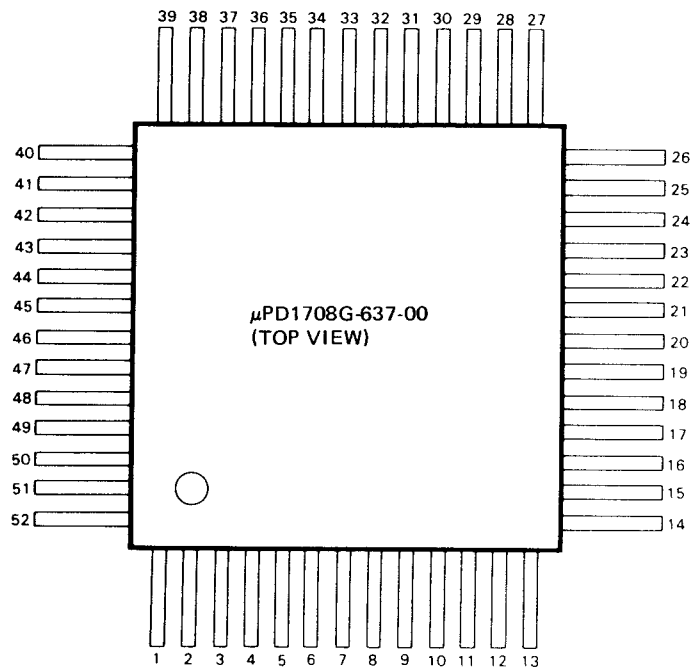
#### Other Functions

- LOUDNESS control

## CIRCUIT DESCRIPTION

## TERMINAL DESCRIPTION

Terminal Configuration (Top View)



Pin No.	Pin Name	Pin No.	Pin Name
1	LCD4	27	KS <sub>1</sub> (PB <sub>1</sub> )
2	LCD3	28	KS <sub>0</sub> (PB <sub>0</sub> )
3	LCD2	29	BAND2/NR
4	LCD1	30	METAL-LOC
5	COM2	31	LOUDNESS
6	COM1	32	*
7	V <sub>DD</sub>	33	*
8	FM	34	*
9	AM	35	*
10	GND	36	*
11	EO <sub>1</sub>	37	*
12	EO <sub>2</sub>	38	LCD19
13	CE	39	LCD18
14	*	40	LCD17
15	XI	41	LCD16
16	XO	42	LCD15
17	AF MUTE (PA <sub>3</sub> )	43	LCD14
18	BAND 1 (PA <sub>2</sub> )	44	LCD13
19	KS <sub>5</sub> /K <sub>5</sub> (PA <sub>1</sub> )	45	LCD12
20	KS <sub>4</sub> /K <sub>4</sub> (PA <sub>1</sub> )	46	LCD11
21	K <sub>3</sub>	47	LCD10
22	K <sub>2</sub>	48	LCD9
23	K <sub>1</sub>	49	LCD8
24	K <sub>0</sub>	50	LCD7
25	KS <sub>3</sub> (PB <sub>3</sub> )	51	LCD6
26	KS <sub>2</sub> (PB <sub>2</sub> )	52	LCD5

\* Not used.

## CIRCUIT DESCRIPTION

## Pin description

Pin No.	Symbol	Pin Name	Description
1~4	LCD1 }	LCD segment signal	LCD segment signal output pin (1/2 duty, 1/2 bias LCD should be used. Frame frequency: 100 Hz, Drive voltage: VDD)
34~52	LCD23		
5	COM2	LCD common signal	LCD common signal output pin
6	COM1		
7	V <sub>DD</sub>	Power input	Device power supply pins During device operation, 5 V $\pm$ 10% voltage is supplied via these pins. Either of them can be used for supplying the power individually. The rising time of VDD should be less than 500 ms (0 to 4.5 V). When the rising time is too long, or when the VDD is not lowered completely to 0 V and then raised to 4.5 V from the voltage lower than the operating rate, the diode switch condition for initialization is not read out correctly. In such cases, use the CE pin so that the diode switch status can be read out for initialization.
33			
8	FM	FM VCO input	This pin inputs the FM station output signal. Since it incorporates the AC amp, cut the DC signal with the capacitor.
9	AM	AM VCO input	This pin inputs the AM station output signal. Since it incorporates the AC amp, cut the DC signal with the capacitor.
10	GND	Ground	Connect to the ground terminal of the set.
11	EO <sub>1</sub>	Error Out	Charge pump output of the phase detector consisting of PLL. When the frequency divided by the oscillating frequency is higher than the reference frequency, these pins output high level signals, and when it is lower than the reference frequency, they go low. When the frequency (divided by the oscillating frequency) is coincided with the reference frequency, it enters into the floating status.
13	CE	Chip Enable	This pin is used to input the selected signal from the device. When operating the PLL section, this pin goes high, and when the PLL section is stopped, it goes low. When at low level, the display goes off. However, a low level signal below 134 $\mu$ s or high level signal is not accepted.
15	XI	Crystal resonator	Connectors of the crystal resonator. Connect the 4.5 MHz crystal resonator.
16	XO		
17	AF MUTE	Mute Out	This pin outputs the muting signal to eliminate shock noise when the PLL is unlocked and pop noise when switching between Tape and Radio, and is active low. (CMOS output) For timing details, refer to the AF Mute Out Timing Chart. When the CE pin is low, this pin is active low.
18	BAND <sub>1</sub>	Band Out	FM/MW switching output pin FM: High MW: Low When the MODE switch is set to "1" (Tape mode), this pin is low. When the SDK is provided, follow the SDK section.
19	KS <sub>5</sub> /K <sub>5</sub>	Key return signal source and Key return signal input	This becomes the source of key return signal to read out the diode matrix for initialization only when the power is turned on for the first time (rising time of VDD) or when the set is returned from the back-up condition (CE: Low to High). Then, this inputs the key return signal for the key matrix. Insert the pull-down resistor. (CMOS input/output)
20	KS <sub>4</sub> /K <sub>4</sub>	Key return signal source and Key return signal input	This becomes the source of the key return signal to read out the diode matrix for initialization only when the power is turned on for the first time (VDD rising time) or when returning from the back-up condition (CE goes high from low). Then, this inputs the key return signal for the key matrix. Insert the pull-down resistor. (CMOS input/output)
21 }	K <sub>3</sub> }	Key return signal input	This pin inputs the key return signal for the key matrix. Insert the pull-down resistor. (CMOS input)
24			
25 }	KS <sub>3</sub> }	Key return signal source	This pin outputs the key return signal for the key matrix. Since the synchronous current is greatly lowered because of its configuration, the reverse-current prevention diode will be not necessary for the key source side. (CMOS output)
28			
30	METAL/DX/LOC	LOC Out	In radio mode: DX Local On/Off output pin When "LOC" is displayed on the LCD panel, high level signal is output. When it is not lit, low level signal is output. (When the power is turned on, low level status is initialized) In tape mode: METAL On/Off output pin When "METAL" is displayed on the LCD panel, low level signal is output. When it is not lit, high level signal is output. On initialization when the tape power is turned on, high level is output

## CIRCUIT DESCRIPTION

Pin No.	Symbol	Pin Name	Description
31	LOUDNESS	Loudness Out	LOUDNESS output pin When "LOUD" is displayed on the LCD panel, low level signal is output. When it is not lit, high level signal is output. When the power is turned on first (VDD rising time), low level signal is output. (CMOS output)
32			DOLBY output pin When "DOLBY" is displayed on the LCD panel, high level signal is output. When it is not lit, low level signal is output. On initialization when the power is turned on, low level is output.

## BAND2/NR

When Band A is "0" or "1" and the NR selector is "1", this functions as the NR on/off output pin. When "NR" is displayed on the LCD panel, high level signal is output. When it is not lit, low level signal is output.

This pin can be operated in the TAPE/RADIO mode.

On initialization when the power is turned on, this pin is at low level.

When BAND A is "0", "1" and the NR selector is "0", this function as the WIDE-ADV on/off output pin.

- In the Radio mode:**

This functions as the WIDE on/off output pin.

When "WIDE" is displayed on the LCD panel, high level signal is output, and when it is not lit, low level is output.

- In the Tape mode:**

This functions as the ADV on/off output pin.

When "ADV" is displayed on the LCD panel, high level signal is output, while it is not lit, low level is output.

On initialization when the power is turned on first, it is at low level.

When BAND A is "0" and the NR selector is "0" (SDK operation is normal only when in this status), and BAND B is "1", this pin functions as the BAND 2 output. BAND 2 becomes the band switching output port in combination with BAND 1.

Mode	Output	BAND 1	BAND 2
MW		L	L
FM		H	L
LW		L	H
SDK		H	H

## CIRCUIT DESCRIPTION

### KEY MATRIX CONFIGURATION

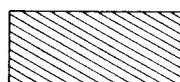
#### Key Matrix Layout

Input pin Output pin	K <sub>5</sub> (19)	K <sub>4</sub> (20)	K <sub>3</sub> (21)	K <sub>2</sub> (22)	K <sub>1</sub> (23)	K <sub>0</sub> (24)
KS <sub>0</sub> (28)	SEEK DOWN	SEEK UP		LOUDNESS	MTL	MONO
KS <sub>1</sub> (27)	MD	MU	M4	M3	M2	M1
KS <sub>2</sub> (26)	ME	SDK	M6	M5		BAND
KS <sub>3</sub> (25)		SK	MODE	SD	ST	FOW/REV
KS <sub>4</sub> (20)			CLK/FRO	NR SEL	BAND B	
KS <sub>5</sub> (19)			BAND A	PRIORITY	BAND C	CLKSEL

The number in the bracket shows the pin no.



: Momentary switch



: Diode matrix (closed/opened by diode)

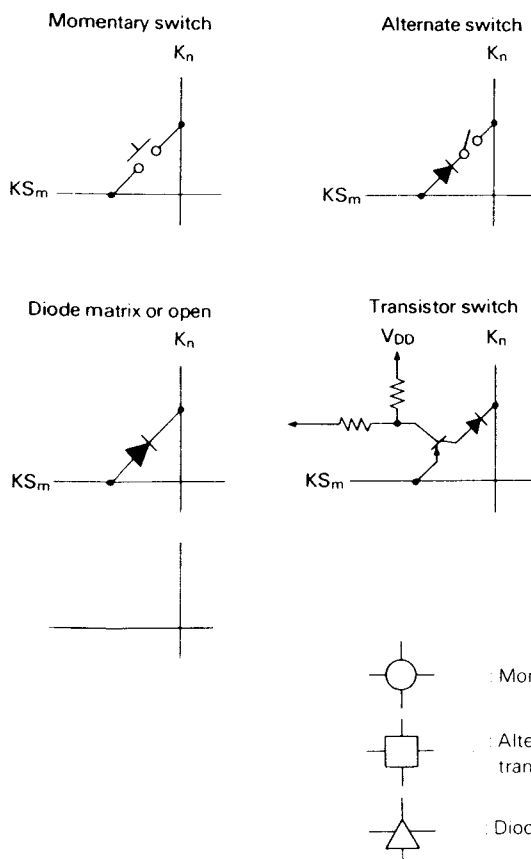


: Alternate switch or transistor switch

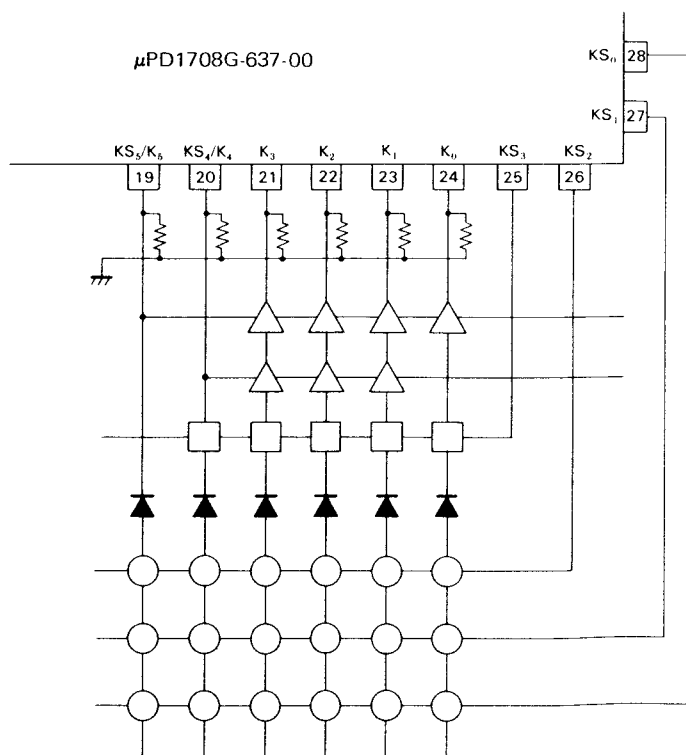


: Open

#### Switch Connection



#### Key Matrix Connection



## CIRCUIT DESCRIPTION

### KEY MATRIX DESCRIPTION

#### Diode Matrix for Initialization

The diode matrix for initialization has the following five status. All status is read out only when the power is supplied to the  $V_{DD}$  for the first time (Power-ON, Reset) and when the CE pin goes high from low level (CE Reset), in another periods, the diode matrix status is ignored.

- (1) The switch for setting the receiving frequency range and the channel spacing:

BAND A

- (2) Clock signal select switch:

CLKSEL

- (3) Priority select switch for display:

PRIORITY

- (4) —

- (5) NR select switch:

NR SEL

- (6) CLOCK/FREQUENCY select switch:

CLOCK/FREQ

- (7) LW select switch:

BAND B

Symbol	Function Description																				
BAND A	<p>This switch is used for setting the receiving frequency range for each FM/MW/LW band channel spacing. Each setting status is as follows:</p> <table><tr><th>BAND A</th><th>Frequency Range</th><th>Channel Spacing</th><th>Manual Step</th></tr><tr><td>1</td><td>87.9~107.9 MHz</td><td>200 kHz</td><td>—</td></tr><tr><td>1</td><td>530~1620 kHz</td><td>10 kHz</td><td>—</td></tr><tr><td>0</td><td>87.5~108.0 MHz</td><td>50 kHz</td><td>25 kHz</td></tr><tr><td>0</td><td>522~1611 kHz</td><td>9 kHz</td><td>—</td></tr></table>	BAND A	Frequency Range	Channel Spacing	Manual Step	1	87.9~107.9 MHz	200 kHz	—	1	530~1620 kHz	10 kHz	—	0	87.5~108.0 MHz	50 kHz	25 kHz	0	522~1611 kHz	9 kHz	—
BAND A	Frequency Range	Channel Spacing	Manual Step																		
1	87.9~107.9 MHz	200 kHz	—																		
1	530~1620 kHz	10 kHz	—																		
0	87.5~108.0 MHz	50 kHz	25 kHz																		
0	522~1611 kHz	9 kHz	—																		
PRIORITY	<p>When the clock function is provided, this switch selects the priority mode for display. When the display which does not have priority is recalled, the mode having priority will be displayed after approx. 5 seconds. "1": No priority "0": Priority is provided.</p>																				
CLKSEL	<p>Select switch to provide the clock function or not. "1": Clock is not provided (For back-up, RAM is not cleared) "0": Clock is provided.</p>																				
NR SEL	<p>Select switch to provide the NR (noise reduction) function. "0": NR is not provided (WIDE-ADV and BAND 2 output pin) "1": NR provided</p>																				
CLOCK/FREQ	<p>Select switch to provide priority to the clock or frequency for display (Depending on PRIORITY) "0": Frequency "1": Clock</p>																				
BAND C	<p>Switch to access the preset memory (M1 to M6) sequentially "0": M1 to M6 keys are preset independently "1": Each time the M1 key is pressed, preset memory is sent sequentially</p> <div><div>M<sub>1</sub></div><div>-----</div><div>M<sub>6</sub></div></div>																				

## CIRCUIT DESCRIPTION

### Mode Select Switches

Unlike the initializing switches, these switches can be changed at any times. (On the following table, "1" shows switched ON, "0" shows switched OFF.)

Symbol	Function Description
MODE	Set the unit to RADIO mode or TAPE mode. "1": TAPE mode "0": RADIO mode
SD	In the RADIO mode: This is the Station Detector input in SEEK or SCAN mode. This should be set to OFF within approx. 50 ms after the PLL is locked. When every times are OFF by detecting the station every 1 ms, the station is recognized as received and the seeking or scanning operation stops.
STEREO	In the RADIO mode: (Only for FM reception) Stereo signal input switch. When this switch turns OFF, "ST" is displayed on the LCD panel. However, "ST" goes off in the Auto Tuning mode (AF-MUTE pin is active) even if this switch is OFF.
FOW/REV	In the Tape mode: Tape running direction indicator input switch. When this switch turns ON, the "REV" (◀) is displayed on the LCD panel. When it turns OFF, the "FOW" (▶) is displayed. This switch functions only when the CE pin is high and the MODE switch is "ON" (Tape mode).

### Momentary Switches

Symbol	Function Description																																																												
MU MD	<p>These keys are used for manual tuning and time adjustment.</p> <ul style="list-style-type: none"><li>● Frequency display Each time the key is pressed, the displayed frequency is advanced up (by MU key) or down (by MD key) by 1 step (channel spacing set). When it is pressed for a half second or more, the frequency is advanced rapidly (continuously) until it is released.</li><li>● Clock (time) display While pressing the ME key, press the MD key to adjust the time, and press the MU key to adjust minutes.</li></ul>																																																												
M1 M6	<p>In the Radio mode: These keys are used to write or recall the preset memory. FM, MW and LW bands can be stored independently into each key in memory.</p> <p>(1) When writing With the frequency display, within five seconds after pressing the ME key, press one key (M1 to M6), to store the frequency currently received into memory.</p> <p>(2) When recalling When one key (M1 to M6) is pressed, the memory content (frequency) corresponding to the key pressed is recalled. When the radio is turned on after the VDD is first turned on, the lowest frequency on the FM band is recalled. When shipped, the following frequencies are preset into M1 to M6 key for adjustment at the factory.</p> <table><tr><th colspan="2">Preset Memory Key</th><th>M1</th><th>M2</th><th>M3</th><th>M4</th><th>M5</th><th>M6</th></tr><tr><th>Band</th><th>Frequency Range</th><th></th><th></th><th></th><th></th><th></th><th></th></tr><tr><td rowspan="4">FM</td><td>87.9 ~ 107.9 MHz</td><td>87.9</td><td>90.1</td><td>98.1</td><td>106.1</td><td>107.9</td><td>87.9</td></tr><tr><td>87.50 ~ 108.00 MHz</td><td>87.50</td><td>90.1</td><td>98.1</td><td>106.1</td><td>108.00</td><td>87.50</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td rowspan="2">MW</td><td>530 ~ 1620 kHz</td><td>530</td><td>600</td><td>1000</td><td>1400</td><td>1620</td><td>530</td></tr><tr><td>522 ~ 1611 kHz</td><td>522</td><td>603</td><td>999</td><td>1404</td><td>1611</td><td>522</td></tr></table>	Preset Memory Key		M1	M2	M3	M4	M5	M6	Band	Frequency Range							FM	87.9 ~ 107.9 MHz	87.9	90.1	98.1	106.1	107.9	87.9	87.50 ~ 108.00 MHz	87.50	90.1	98.1	106.1	108.00	87.50															MW	530 ~ 1620 kHz	530	600	1000	1400	1620	530	522 ~ 1611 kHz	522	603	999	1404	1611	522
Preset Memory Key		M1	M2	M3	M4	M5	M6																																																						
Band	Frequency Range																																																												
FM	87.9 ~ 107.9 MHz	87.9	90.1	98.1	106.1	107.9	87.9																																																						
	87.50 ~ 108.00 MHz	87.50	90.1	98.1	106.1	108.00	87.50																																																						
MW	530 ~ 1620 kHz	530	600	1000	1400	1620	530																																																						
	522 ~ 1611 kHz	522	603	999	1404	1611	522																																																						

## CIRCUIT DESCRIPTION

Symbol	Function Description
RCAL	<p>Display select key. Available only when in the radio mode.</p> <p>When this key is pressed, the display is changed from the clock display to frequency or vice versa. However, five seconds after the key is pressed, the display is restored to the priority mode (depending on the diode matrix PRIORITY).</p> <p>When the clock is not provided (CLKSEL = 0), this key has no effect.</p> <p>However, the clock display is resumed by the PRIORITY switch when the display priority is provided.</p> <p>a) ON: Priority is provided b) OFF: No priority</p>
N.R	<p>(1) NR key (RADIO/TAPE common key) (2) WIDE-ADV key (Independent RADIO/TAPE key)</p> <p>(1) NR key: BAND A: "0", "1" NR SEL: "1" With the above status, this key is used as the NR select key. Each time the key is pressed, the BAND2/NR output pin and "NR" display on the LCD panel are inverted. When "NR" is displayed on the LCD panel, the BAND2/NR pin outputs the high level, and when the display is not lit, low level is output. (By initialization when the power is turned on, it outputs low level.)</p> <p>(2) WIDE-ADV key: BAND A: "0", "1" NR SEL: "1" With the above status, this key is used as the WIDE-ADV select key. In the Radio mode: Used as the WIDE select key. Each time the key is pressed, the BAND2/ADV output pin and the "WIDE" display on the LCD panel are inverted. When the "WIDE" is displayed on the LCD panel, the BAND2/ADV pin outputs the high level, and when the display is not lit, low level is output. On Tape mode: Used as the ADV select key. Each time the key is pressed, the BAND2/NR output pin and the "ADV" display on the LCD panel are inverted. When the "ADV" is displayed on the LCD panel, the BAND2/NR pin outputs the high level. When the display is not lit, the low level is output. (By initialization when the power is turned on, low level is output.) Note: When the following status is selected in the diode matrix, the NR key and the WIDE-ADV key are not effective. NR SEL: "0" BAND A: "0" BAND B: "1"</p>
M5 BAND	<p>This key is used for setting the received frequency range for FM/MW/LW band and the channel spacing.</p> <ol style="list-style-type: none"> <li>By initialization when the power is turned on, the receiving frequency and channel spacing are registered by the diode of BAND A. Then, when the CE pin goes "L" → "H" or vice versa, they follow the diode of BAND A.</li> <li>When the CE pin is inverted to high from low while pressing the M5 key and the BAND key together, the band setting of BAND A is changed from "1" to "0" or from "0" to "1". Then, when the CE pin is inverted to "L" → "H" or vice versa, the changed area setting is maintained.</li> <li>When the CE pin is inverted from low to high while pressing the M5 key and BAND key together, the band setting follows the diode of BAND A. Then, when the CE pin is inverted from "L" → "H" or vice versa, it follows the diode of BAND A, too.</li> <li>To change the setting by the M5 key and the BAND key, repeat procedure 2 and 3.</li> </ol> <p>Note: On initialization when the power is turned on, the M5 key and the BAND key are ignored even when they are pressed, and the setting is followed to the diode.</p>

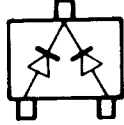
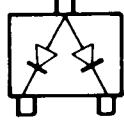
## CIRCUIT DESCRIPTION

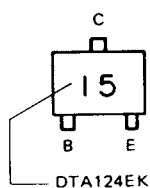
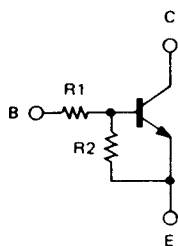
Symbol	Function Description
M1 M6	<p>These keys are used to write and recall the preset memory.</p> <p>Each FM, MW and LW frequency can be stored into one key in memory independently.</p> <p>However, the number of available bands differ with the area designated by the initializing diode matrix, as follows:</p> <p>For the area only 2 bands are available: <math>6 \text{ stations} \times 2 = 12 \text{ stations}</math></p> <p>For the area 3 bands are available: <math>6 \text{ stations} \times 3 = 18 \text{ stations}</math></p> <p>Corresponding to the preset key pressed, the "CH" indicator and " " (channel number) are displayed on the LCD panel.</p>
SEEK UP/DOWN	<p>These keys are used for automatic tuning. During auto tuning operation, when the SD switch is turned OFF, the frequency displayed at the time is kept on hold.</p> <p>In auto tuning mode, the auto tuning operation is continued even when the LOUDNESS, ME, NR, METAL-DX/LOC, or MONO-DOLBY key is pressed.</p> <p>When one of the other keys is pressed, the auto tuning operation is stopped, and the unit enters the operation of the key pressed.</p> <p>When the SEEK key is pressed again, the frequency before the SEEK operation is resumed.</p>
DX/LOC —MTL	<p>This key is used to select the function between DX/LOC — MTL.</p> <ul style="list-style-type: none"> <li>In the Radio mode:           <p>Each time the key is pressed, the LOC output pin and the "LOC" display on the LCD panel are inverted. When the "LOC" display on the LCD panel, high level signal is output from the LOC Out pin, and when it is not lit, low level is output.</p> </li> <li>In the Tape mode:           <p>Each time the key is pressed, the LOC output pin and the "MTL" display are inverted.</p> <p>When the "MTL" is displayed on the LCD panel, low level signal is output from the LCD Out pin, and when it is not lit, high level is output.</p> <p>By initialization when the power is turned on, high level signal is output.</p> </li> </ul>
ME	<p>This key is used for writing the preset memory. It is also used for adjusting the time on clock display.</p> <ul style="list-style-type: none"> <li>Frequency display:           <p>Used when writing a new frequency into the preset memory. When this key is pressed, the "ME" is displayed on the LCD panel, and lit for five seconds after the key is released. While the "ME" is lit, pressing one key (M1 to M6) stores the displayed frequency into memory corresponding to the key pressed.</p> <p>To cancel the preset memory, while the "ME" is lit, press any key other than ME, NR, METAL-DX/LOC, MONO-DOLBY, or LOUDNESS.</p> </li> <li>Clock display:           <p>The "hour" and "minutes" can be adjusted by pressing the MD or MU key while pressing the ME key.</p> <p>After pressing the ME key, each time the MD key is pressed, the "hour" is advanced one by one. Pressing it for a half second or more advances the time by 4 hours/sec continuously until the MD key is released. This operation does not affect the "minute" or "second" digits (they are not displayed during this operation).</p> <p>After pressing the ME key, each time the MU key is pressed, the "minute" is advanced one by one. Press it for a half second or more advances the minute in 8 minutes/sec speeds continuously, until the MU key is released. The "second" is not displayed, however, it is reset to zero every time the "minute" is set. The "minute" adjusting does not affect the "hour". ("Hour" is not changed even when the "minute" exceeds 60.)</p> <p>(During clock display, pressing the ME key alone changes the display to frequency and "ME" is displayed. In this condition, pressing one of the preset keys (M1 to M6) stores the frequency into the memory corresponding to the key pressed.)</p> </li> </ul>
BAND	<p>This key is used to select the band.</p> <p>When Band A is "0" or "1" and Band B is "0" (LW: Not available) . . .</p> <p>Each time this key is pressed, the band is changed in the order of FM — MW — FM . . .</p>
LOUDNESS	<p>Used for Loudness select key.</p> <p>Each time this key is pressed, the loudness output pin and the "LOUD" display on the LCD panel are inverted. When the "LOUD" is displayed on the LCD panel, low level signal is output from the Loudness pin and when it is not lit, high level is output.</p> <p>By initialization when the power is first turned on (rising time of VDD), "LOUD" is displayed and low level is output.</p>

## CLASSIFICATION OF CHIP PARTS

Digital transistor/デジトラ	Symbol/記号	R1	R2
DTA/DTC114EK	14/24	10k	10k
DTA/DTC114YK	54/64	10k	47k
DTA/DTC114TK	94/04	10k	—
DTA/DTC124EK	15/25	22k	22k
DTA/DTC124XK	35/45	22k	47k
DTA/DTC143EK	13/23	4.7k	4.7k
DTA/DTC143TK	93/03	4.7k	—
DTA/DTC144EK	16/26	47k	47k
DTA/DTC144WK	76/86	47k	22k
DTA/DTC143XK	33/43	4.7k	10k

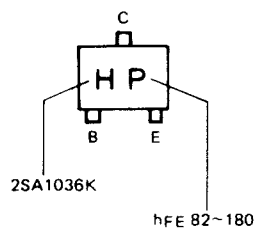
Transistor/トランジスタ	Symbol/記号
2SA1036K	H <input type="checkbox"/>
2SA1037K	F <input type="checkbox"/>
2SC2411K	C <input type="checkbox"/>
2SC2412K	B <input type="checkbox"/>
2SC2413K	A <input type="checkbox"/>
2SC2059K	J <input type="checkbox"/>
2SC3082K	S <input type="checkbox"/>
2SB852K	U <input type="checkbox"/>
2SD1383K	W <input type="checkbox"/>
2SD1757K	AA <input type="checkbox"/>
2SD1328	ID <input type="checkbox"/>
2SC2412LN	L <input type="checkbox"/>

Diode/ダイオード
DAN202K Silver/シルバー

DAP202K Green/グリーン




hFE

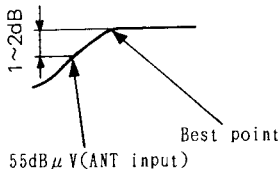
M	39~ 82
N	56~ 120
P	82~ 180
Q	120~ 270
R	180~ 390
S	270~ 560
E	390~ 820
U	560~1200
A	1000~
B	5000~



## ADJUSTMENT

Set the controls and switches as follows.

BALANCE :center position    LOUD :OFF    LOCAL :OFF  
 FADER :center position    METAL :OFF    MONO :OFF  
 BASS :center position    DOLBY NR :OFF  
 TREBLE :center position

No.	ITEM	INPUT SETTINGS	OUTPUT SETTINGS	TUNER(RECEIVER) SETTINGS	ALIGNMENT POINTS	ALIGN FOR	FIG.
FM SECTION							
1	DISCRIMINATOR	(A) 98.1MHz 0 dev 60dB $\mu$ V(ANT input)	Connect a DC voltmeter to TP1. (X05-318)	FM 98.1MHz	T1 (X05-318)	0V	(a)
2	SEEK STOP LEVEL	(A) 98.1MHz 1kHz, $\pm 40$ kHz dev 20dB $\mu$ V(ANT input)	—	FM SEEK:ON 98.1MHz	VR2 (X05-318)	STOP	
3	ANRC (1)	(C) 98.1MHz 1kHz, $\pm 40$ kHz dev Selector:L or R Pilot: $\pm 6$ kHz dev 60dB $\mu$ V(ANT input)	(B)	FM 98.1MHz	VR3 (X05-318)	(1) Maximum separation. (2) -1 or -2 dB down from Maximum separation.	
4	ANRC (2)	(C) 98.1MHz 1kHz, $\pm 40$ kHz dev Selector:L or R Pilot: $\pm 6$ kHz dev 55dB $\mu$ V(ANT input)	(B)	FM 98.1MHz	VR3 (X05-318)		
5	IF GAIN	(C) 98.1MHz 1kHz, $\pm 40$ kHz dev Selector:L or R Pilot: $\pm 6$ kHz dev 30dB $\mu$ V(ANT input)	(B)	FM 98.1MHz	VR1 (X05-318)	Separation 10dB	
Repeat alignment 3~5 several times.							
6	SOFT MUTE LEVEL	(A) 98.1MHz 1kHz, $\pm 40$ kHz dev 60dB $\mu$ V $\rightarrow$ No input	(B)	FM 98.1MHz	VR5 (X05-318)	Output Noise level -25dB (When not add any signal to ANT terminal)	
7	SEPARATION	(C) 98.1MHz 1kHz, $\pm 40$ kHz dev Selector:L or R Pilot: $\pm 6$ kHz dev 60dB $\mu$ V(ANT input)	(B)	FM 98.1MHz	VR6 (X05-318)	Minimum crosstalk. A compromise adjustment may be required if left-to-right and right-to-left separations are unequal.	
8	PILOT CANCELLER	(C) 98.1MHz 0 dev Pilot: $\pm 6$ kHz dev 60dB $\mu$ V(ANT input)	(B)	FM 98.1MHz	VR7 (X05-318)	Minimum output	

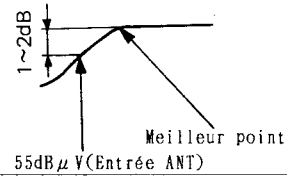
## ADJUSTMENT

No.	ITEM	INPUT SETTINGS	OUTPUT SETTINGS	RECEIVER SETTINGS	ALIGNMENT POINTS	ALIGN FOR	FIG.
SDK SECTION							
(1)	DK SENSITIVITY	(E) 98.1MHz 0 dev SK, 5.33% mod DK, 30% mod BK SW: OFF 60dB $\mu$ V (ANT input)	Connect an AC voltmeter to CN3 (X25-283)	FM 98.1MHz SDK: OFF	VR3 (X25-283)	17mV AC	(b)
(2)	DK VCO	DK SW: OFF BK SW: OFF	Connect a frequency counter to CN3 (X25-283)	FM 98.1MHz SDK: ON	VR4 (X25-283)	125Hz	(c)
(3)	DK LEVEL	(E) 98.1MHz 1kHz, $\pm 40$ kHz dev SK, 5.33% mod DK, 30% BK, 60% mod 60dB $\mu$ V (ANT input)	(B)	FM 98.1MHz VOLUME: MINIMUM SDK: ON	VR3 (X14-206)	400mV AC	(d)
AM SECTION							
< 1 >	STOP LEVEL	(D) 999kHz 400Hz, 30% mod 35dB $\mu$ V (ANT input)	—	AM SEEK: ON 999kHz	VR2 (X14-206)	STOP	
CASSETTE DECK SECTION							
[ 1 ]	AZIMUTH	MTT-216 (10kHz)	(B)	TAPE PLAY	Hesd Azimuth Screw	Adjust so that the output levels of the forward and reverse left and right channels are all maximum and identical.	(e)
[ 2 ]	PLAY BACK LEVEL	MTT-150	Connect a AC voltmeter to CN2	TAPE PLAY	VR1(L) VR2(R) (X25-283)	300mV AC	(f)

## REGLAGE

Régler les controles et les boutons comme suit.

BALANCE	:position centre	LOUD	:OFF	LOCAL	:OFF
FADER	:position centre	METAL	:OFF	MONO	:OFF
BASS	:position centre	DOLBY NR	:OFF		
TREBLE	:position centre				

N°	ITEM	REGLAGE DE L'ENTREE	REGLAGE DE LA SORTIE	REGLAGE DU TUNER (AMPLI-TUNER)	POINTS DE L'ALIGNEMENT	ALIGNER POUR	FIG.
SECTION MF							
1	DISCRIMINATEUR	(A) 98.1MHz 0 dév 60dB $\mu$ V(Entrée ANT)	Connecter un voltmètre CC entre à TPl. (X05-318)	FM 98.1MHz	T1 (X05-318)	0V	(a)
2	NIVEAU DE CHERCHER D'ARRET	(A) 98.1MHz 1kHz, $\pm$ 40kHz dév 20dB $\mu$ V(Entrée ANT)	—	FM CHERCHER:ON 98.1MHz	VR2 (X05-318)	ARRET	
3	ANRC (1)	(C) 98.1MHz 1kHz, $\pm$ 40kHz dév Selecteur:G ou D Pilote: $\pm$ 6kHz dév 60dB $\mu$ V(Entrée ANT)	(B)	FM 98.1MHz	VR3 (X05-318)	(1) Séparation maximale. (2) -1 ou -2 dB down from Séparation maximale.	
4	ANRC (2)	(C) 98.1MHz 1kHz, $\pm$ 40kHz dév Selecteur:G ou D Pilote: $\pm$ 6kHz dév 55dB $\mu$ V(Entrée ANT)	(B)	FM 98.1MHz	VR3 (X05-318)		
5	GAIN FI	(C) 98.1MHz 1kHz, $\pm$ 40kHz dév Selecteur:G ou D Pilote: $\pm$ 6kHz dév 30dB $\mu$ V(Entrée ANT)	(B)	FM 98.1MHz	VR1 (X05-318)	Séparation 10dB	
Répétre les points 3~5 plusieurs fois.							
6	NIVEAU DE SOFT MUTE	(A) 98.1MHz 1kHz, $\pm$ 40kHz dév 60dB $\mu$ V $\rightarrow$ Entrée No	(B)	FM 98.1MHz	VR5 (X05-318)	Bruit de niveau de sortie -25dB (Sous non correspondance d'antenne.)	
7	SEPARATION	(C) 98.1MHz 1kHz, $\pm$ 40kHz dév Selecteur:G ou D Pilote: $\pm$ 6kHz dév 60dB $\mu$ V(Entrée ANT)	(B)	FM 98.1MHz	VR6 (X05-318)	Diaphone minimale. Un compromis de réglage peut être nécessaire si les séparations de gauche à droite et de droite à gauche sont inégales.	
8	SUPPRESSION DE SIGNAL PILOTE	(C) 98.1MHz 0 dév Pilote: $\pm$ 6kHz dév 60dB $\mu$ V(Entrée ANT)	(B)	FM 98.1MHz	VR7 (X05-318)	Sortie minimale	

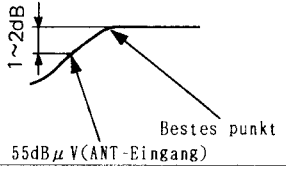
## REGLAGE

N°	ITEM	REGLAGE DE L'ENTREE	REGLAGE DE LA SORTIE	REGLAGE DU RECEIVER	POINTS DE L'ALIGNEMENT	ALIGNER POUR	FIG.
SECTION SDK							
(1)	SENSIBILITE DK	(E) 98.1MHz 0 dév SK, 5.33% mod DK, 30% mod BK SW:OFF 60dB $\mu$ V (Entrée ANT)	Connecter un voltmètre AC entre à CN3. (X25-283)	FM 98.1MHz SDK:OFF	VR3 (X25-283)	AC 17mV	(b)
(2)	DK VCO	DK SW:OFF BK SW:OFF	Connecter un compteur de Fréquence à CN3. (X25-283)	FM 98.1MHz SDK:ON	VR4 (X25-283)	125Hz	(c)
(3)	NIVEAU DE DK	(E) 98.1MHz 1kHz, $\pm$ 40kHz dév SK, 5.33% mod DK, 30% BK, 60% mod 60dB $\mu$ V (Entrée ANT)	(B)	FM 98.1MHz VOLUME: MINIMALE SDK:ON	VR3 (X14-206)	AC 400mV	(d)
SECTION MA							
< 1 >	NIVEAU D'ARRET	(D) 999kHz 400Hz, 30% mod 35dB $\mu$ V (Entrée ANT)	—	MA CHERCHER:ON 999kHz	VR2 (X14-206)	ARRET	
SECTION DU MAGNETPHONE							
[1]	AZIMUTH	MTT-216(10kHz)	(B)	Lecture de bande	Vis d'azimut de tête	Régler en sorte que les niveaux de sortie des canaux de l'avance de gauche et de droite et des canaux marche arrière de gauche et de droite soient tous au maximum et identiques.	(e)
[2]	NIVEAU DE LECTURE	MTT-150	Connecter un voltmètre AC entre à CN2.	Lecture de bande	VR1(G) VR2(D) (X25-283)	AC 300mV	(f)

## ABGLEICH

Die Regler und Knöpfe wie folgt einstellen.

BALANCE :Mittelage    LOUD :OFF    LOCAL :OFF  
 FADER :Mittelage    METAL :OFF    MONO :OFF  
 BASS :Mittelage    DOLBY NR :OFF  
 TREBLE :Mittelage

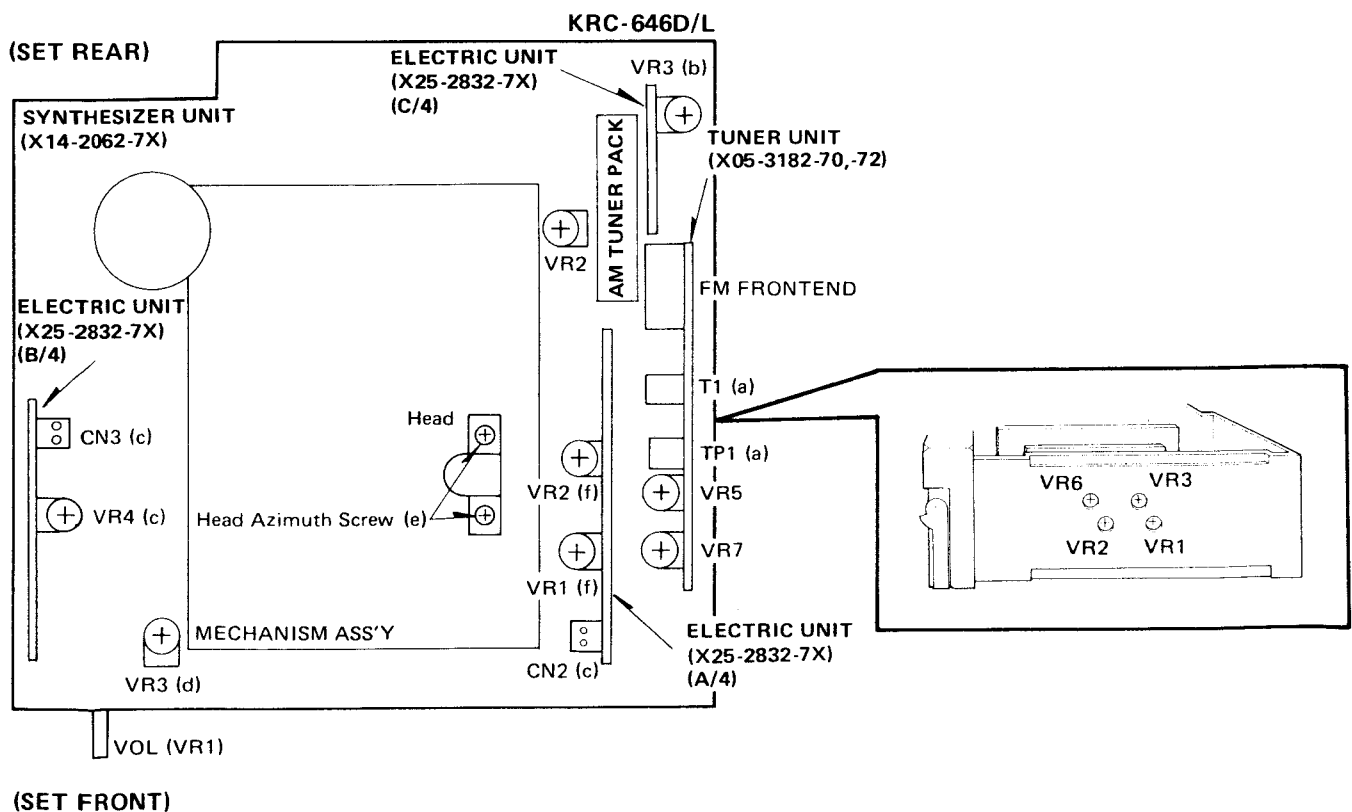
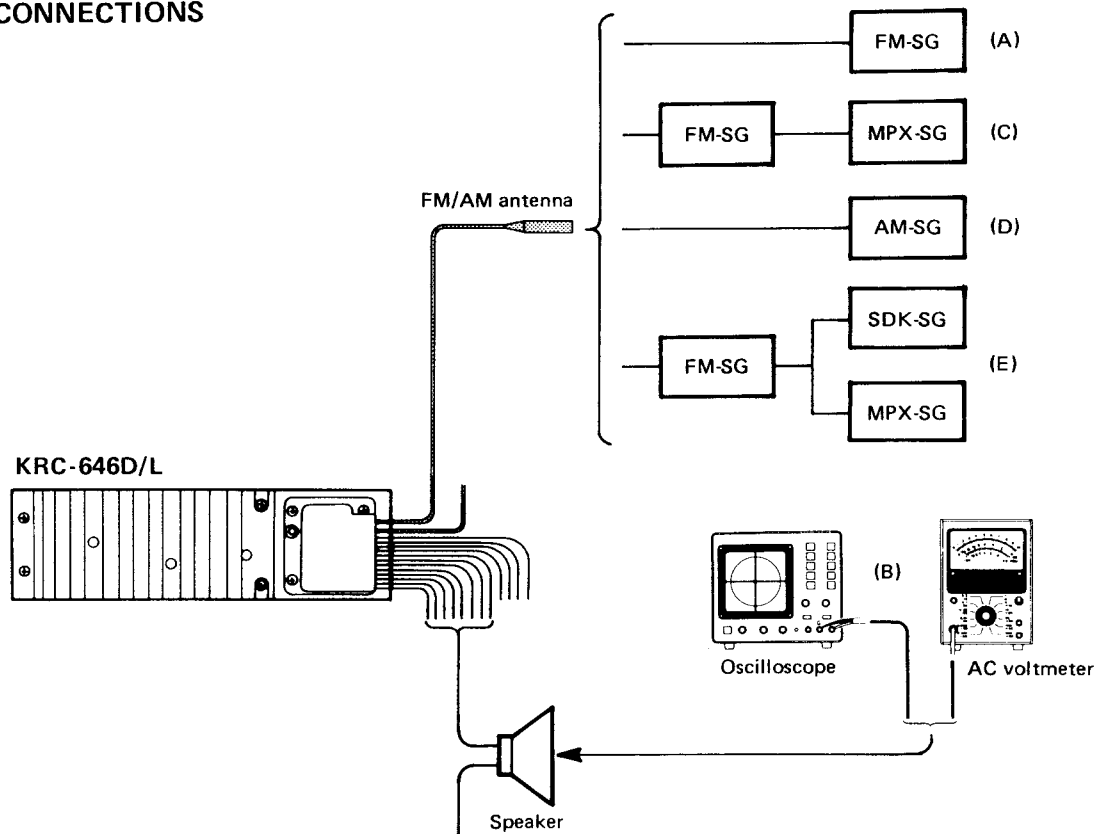
NR.	GEGENSTAND	EINGANGS-EINSTELLUNG	AUSGANGS-EINSTELLUNG	TUNER(RECEIVER)-EINSTELLUNG	ABGLEICH PUNKTE	ABGLEICHEN FÜR	ABB.
UKW-ABTEILUNG							
1	DISKRIMINATOR	(A) 98,1MHz 0 Hub 60dB $\mu$ V(ANT-Eingang)	Einen Gleichspannungsmesser zwischen zu TP1 anschließen. (X05-318)	FM 98,1MHz	T1 (X05-318)	0V	(a)
2	SUCHEN HALT PEGEL	(A) 98,1MHz 1kHz $\pm$ 40kHz Hub 20dB $\mu$ V(ANT-Eingang)	—	FM SUCHEN:ON 98,1MHz	VR2 (X05-318)	HALT	
3	ANRC (1)	(C) 98,1MHz 1kHz $\pm$ 40kHz Hub Wähler:L oder R Pilot: $\pm$ 6kHz Hub 60dB $\mu$ V(ANT-Eingang)	(B)	FM 98,1MHz	VR3 (X05-318)	(1) Maximaler trennung  (2) -1 oder -2 dB down from Maximaler trennung.	
4	ANRC (2)	(C) 98,1MHz 1kHz $\pm$ 40kHz Hub Wähler:L oder R Pilot: $\pm$ 6kHz Hub 55dB $\mu$ V(ANT-Eingang)	(B)	FM 98,1MHz	VR3 (X05-318)		
5	IF VERSTÄRKUNG	(C) 98,1MHz 1kHz $\pm$ 40kHz Hub Wähler:L oder R Pilot: $\pm$ 6kHz Hub 30dB $\mu$ V(ANT-Eingang)	(B)	FM 98,1MHz	VR1 (X05-318)	Trennung 10dB	
Abstimmungen 3~5 mehrere Male wiederholen.							
6	SOFT MUTE PRGEL	(A) 98,1kHz 1kHz $\pm$ 40kHz Hub 60dB $\mu$ V $\rightarrow$ No Eingang	(B)	FM 98,1MHz	VR5 (X05-318)	Ausgang Geräusch Pegel -25dB (Wenn Antenna stecker nicht anschließen.)	
7	STEREO KANAL TRENNUNG	(C) 98,1MHz 1kHz $\pm$ 40kHz Hub Wähler:L oder R Pilot: $\pm$ 6kHz Hub 60dB $\mu$ V(ANT-Eingang)	(B)	FM 98,1MHz	VR6 (X05-318)	Minimales Übersprechen Einen Ausgleichregelung Kann notwendig sein, falls links zu rechts und rechts zu links Trennungen ungleich sind.	
8	PILOT LÖSCHER	(C) 98,1kHz 0 Hub Pilot: $\pm$ 6kHz Hub 60dB $\mu$ V(ANT-Eingang)	(B)	FM 98,1MHz	VR7 (X05-318)	Minimal Ausgang	

## ABGLEICH

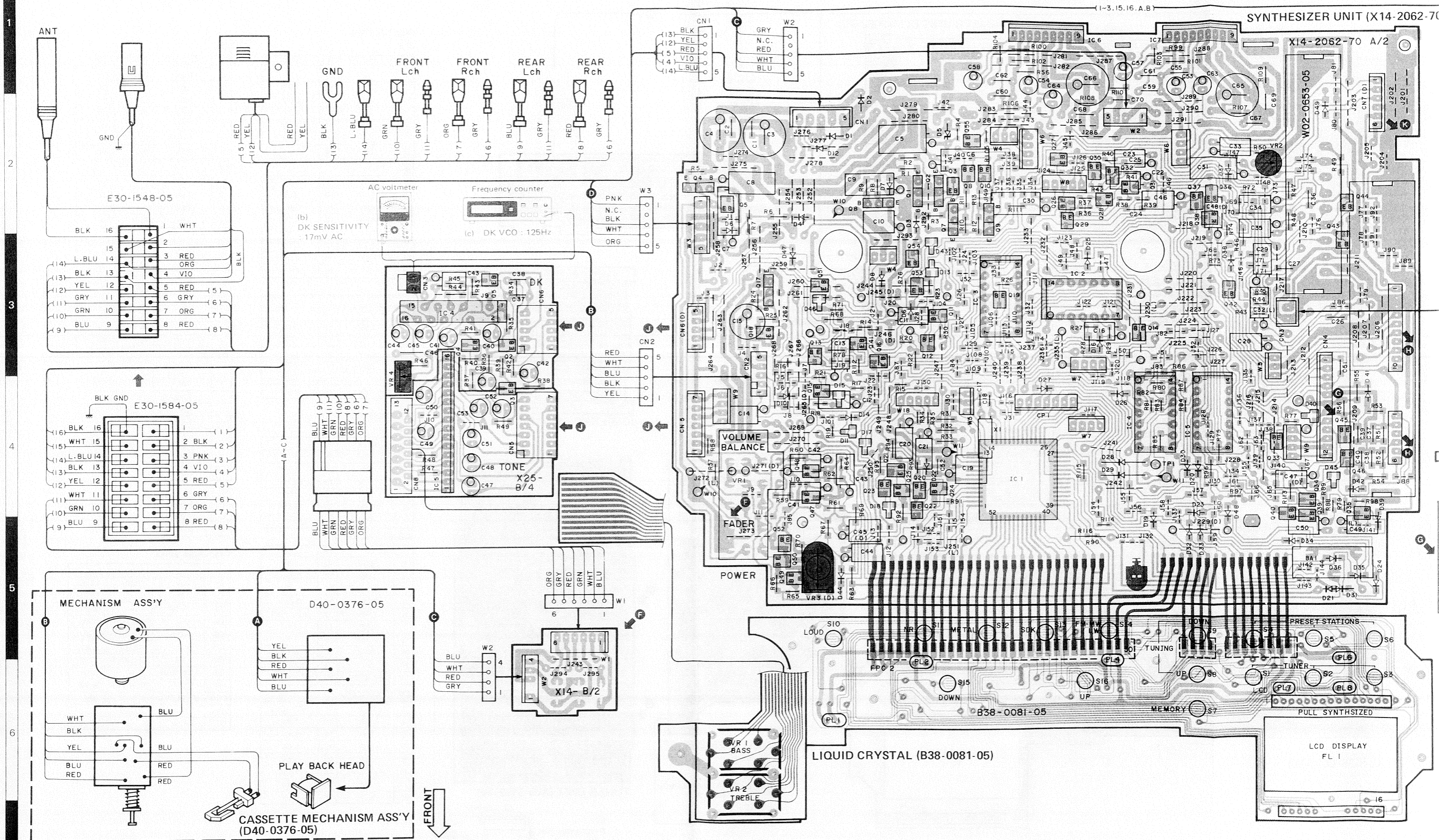
NR.	GEGENSTAND	EINGANGS- EINSTELLUNG	AUSGANGS- EINSTELLUNG	TUNER(RECEIVER)- EINSTELLUNG	ABGLEICH PUNKTE	ABGLEICHEN FÜR	ABB.
SDK - ABTEILUNG							
(1)	DK EMPFINDLICHKEIT	(E) 98,1MHz 0 Hub SK, 5,33% mod DK, 30% mod BK SW:OFF 60dB $\mu$ V(ANT-Eingang)	Einen Wechsel- spannungsmesser zu CN3 anschießen. (X25-283)	FM 98,1MHz SDK:OFF	VR3 (X25-283)	17mV AC	(b)
(2)	DK VCO	DK SW OFF BK SW OFF	Einen Frequenz- messer zu CN3. anschießen. (X25-283)	FM 98,1MHz SDK:ON	VR4 (X25-283)	125Hz	(c)
(3)	DK PEGEL	(E) 98,1MHz 1kHz, $\pm 40$ kHz Hub SK, 5,33% mod DK, 30% BK, 60% mod 80dB $\mu$ V(ANT-Eingang)	(B)	FM 98,1MHz VOLUME: Minimal SDK:ON	VR3 (X14-206)	400mV AC	(d) <sup>1</sup>
MW - ABTEILUNG							
< 1 >	HALT PEGEL	(D) 999kHz 400Hz, 30% mod 35dB $\mu$ V(ANT-Eingang)	—	MW SEEK:ON 999kHz	VR2 (X14-206)	HALT	
CASSETTEN-DECK-ABTEILUNG							
[ 1 ]	AZIMUTH	MTT-216(10kHz)	(B)	Bandwiedergabe	Kopfazimutschraube	So einstellen, daß die Ausgangspegel der linken und rechten Kanäle bei Rücklauf maximal und übereinstimmend sind.	(e)
[ 2 ]	WIEDERGABE- PEGEL	MTT-150	Einen Wechsel- spannungsmesser zu CN2 anschießen.	Bandwiedergabe	VR1(L) VR2(R) (X25-283)	300mV AC	(f)

## ADJUSTMENT/REGLAGE/ABGLEICH

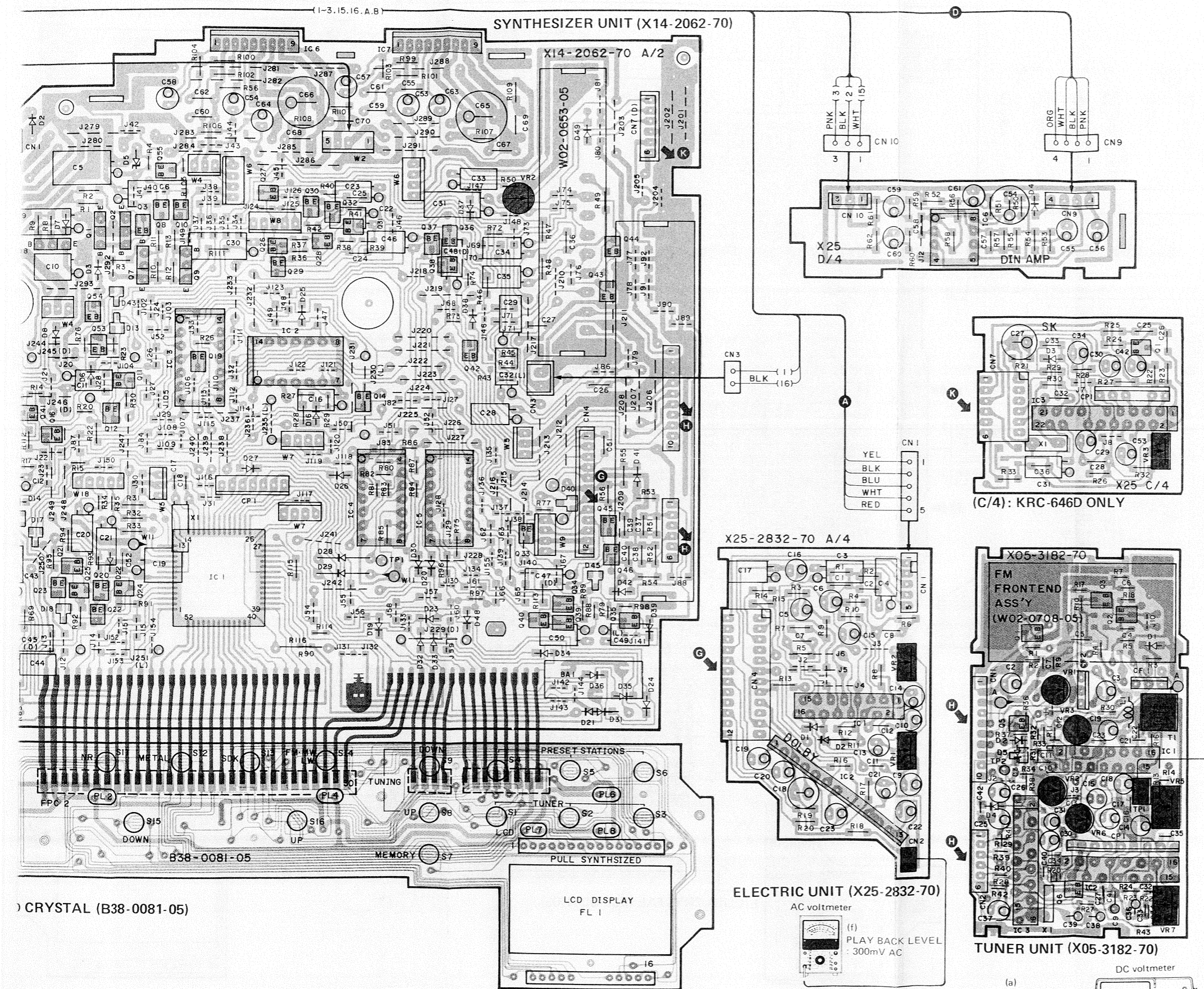
### SYSTEM CONNECTIONS



# PC BOARD (COMPONENT SIDE VIEW)



# PC BOARD (COMPONENT SIDE VIEW)



(X05-3182-70)

IC1	1	3V	9	4.8V
	2	3V	10	4.6V
	3	3V	11	1.9V
	4	0V	12	8.5V
	5	—	13	4.7V
	6	—	14	2.3V
	7	—	15	2.3V
	8	0V	16	2.4V

IC2	1	8.5V	9	1.5V
	2	3.4V	10	2.8V
	3	4.6V	11	2.8V
	4	4.6V	12	2.1V
	5	4.1V	13	6.4V
	6	4.2V	14	0.1V
	7	4.8V	15	4.5V
	8	0V	16	4.5V

IC3	1	8.5V	9	0V
	2	3.3V	10	—
	3	3.5V	11	2.7V
	4	2.7V	12	2.7V
	5	3.8V	13	1.2V
	6	3.8V	14	2.7V
	7	—	15	2.7V
	8	1.2V	16	3.5V

(X25-2832-70)

IC2	1	4.7V	8	4.5V
	2	4.7V	9	4.5V
	3	0V	10	4.7V
	4	4.7V	11	4.7V
	5	0V	12	4.7V
	6	9.3V	13	4.7V
	7	0V	—	—

IC3 (D ONLY)

	1	—	12	2.9V
	2	2.0V	13	2.9V
	3	2.05V	14	2.9V
	4	0V	15	2.8V
	5	2.05V	16	0.05V
	6	7.95V	17	3.2V (0V)
	7	2.05V	18	3.1V
	8	2.35V	19	3.1V
	9	3.1V	20	3.1V
	10	0V	21	3.1V
	11	6.3V (0.55V)	22	3.1V

IC4 (D ONLY)

	1	9.2V	9	1.0V (0V)
	2	2.3V	10	1.4V
	3	1.6V	11	1.4V
	4	0V	12	1.0V
	5	0V	13	1.4V
	6	9.2V (0V)	14	1.2V
	7	0V	15	1.4V
	8	1.2V	16	0.8V

IC5

	1	0.6V	9	0.6V
	2	0.6V	10	0V
	3	0.6V	11	0.6V
	4	0.6V	12	2.8V
	5	0.6V	13	0.6V
	6	0.6V	14	0.6V
	7	0.6V	15	8.9V
	8	0.6V	16	2.8V

IC6

	1	3.5V	5	3.5V
	2	3.5V	6	3.5V
	3	3.5V	7	3.5V
	4	3.5V	8	7.1V

IC7

	1	4.1V	9	0V
	2	2.4V	10	2.3V (0V)
	3	0.9V	11	1.4V
	4	0V	12	0V
	5	1.4V	13	0.9V
	6	0V	14	0V
	7	7.7V	15	4.1V
	8	0.7V (0V)	16	2.4V

IC6,IC7

	1	1.4V
	2	0V
	3	1.4V
	4	0V
	5	1.4V
	6	1.41V
	7	1.43V
	8	6.8V
	9	6.8V

Q1

	B	5.5V
	C	7.9V
	E	5.0V

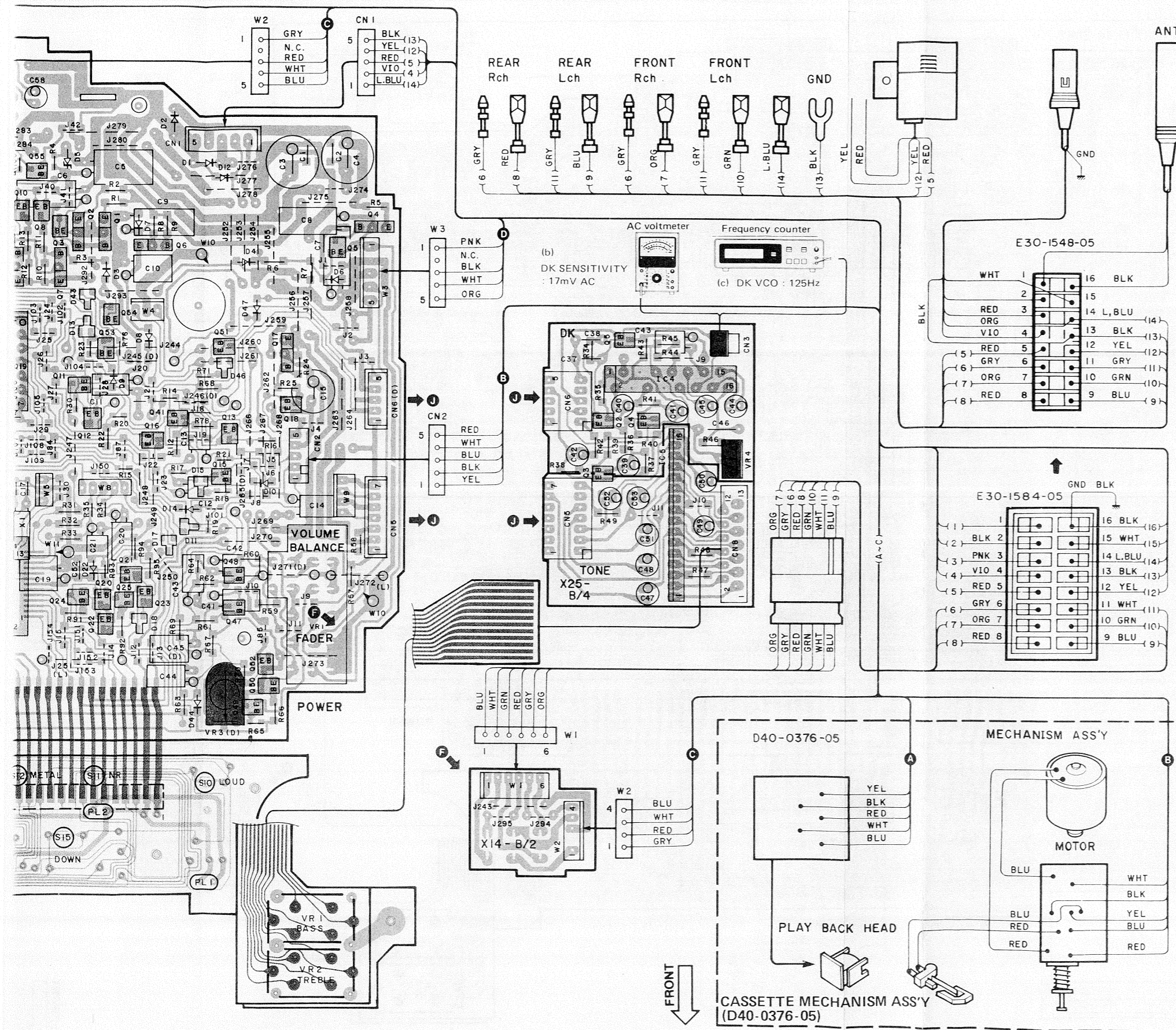
(X14-2062-70)

		B	C	E
Q1	—	8.8V	14.0V	—
Q2	0V	8.8V	14.0V	—
Q3	9.4V	—	8.8V	—
Q4	—	14.2V	9.4V	—
Q5	10V	—	9.4V	—
Q6	6.4V	13.8V	5.6V	—
Q7	0V	8.7V (0V)	8.8V	—
Q8	4.8V (0V)	—	0V	—
Q9	—	0V (8.7V)	8.8V	—
Q10	0V (4.8V)	—	0V	—
Q11	—	4.95V	5.0V	—
Q12	8.3V	—	0V	—



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# PC BOARD (FOIL SIDE VIEW)



(X05-3182-70)

IC1	1	3V	9	4.8V
	2	3V	10	4.6V
	3	3V	11	1.9V
	4	0V	12	8.5V
	5	—	13	4.7V
	6	—	14	2.3V
	7	—	15	2.3V
	8	0V	16	2.4V

IC2	1	8.5V	9	1.5V
	2	3.4V	10	2.8V
	3	4.6V	11	2.8V
	4	4.6V	12	2.1V
	5	4.1V	13	6.4V
	6	4.2V	14	0.1V
	7	4.8V	15	4.5V
	8	0V	16	4.5V

IC3	1	8.5V	9	0V
	2	3.3V	10	—
	3	3.5V	11	2.7V
	4	2.7V	12	2.7V
	5	3.8V	13	1.2V
	6	3.8V	14	2.7V
	7	—	15	2.7V
	8	1.2V	16	3.5V

(X25-2832-70)

IC2	1	4.7V	8	4.5V
	2	4.7V	9	4.5V
	3	0V	10	4.7V
	4	4.7V	11	4.7V
	5	0V	12	4.7V
	6	9.3V	13	4.7V
	7	0V	14	—

IC3 (D ONLY)

1	—	12	2.9V
2	2.0V	13	2.9V
3	2.05V	14	2.9V
4	0V	15	2.8V
5	2.05V	16	0.05V
6	7.95V	17	3.2V (0V)
7	2.05V	18	3.1V
8	2.35V	19	3.1V
9	3.1V	20	3.1V
10	0V	21	3.1V
11	6.3V (0.55V)	22	3.1V

IC4 (D ONLY)

1	9.2V	9	1.0V (0V)
2	2.3V	10	1.4V
3	1.6V	11	1.4V
4	0V	12	1.0V
5	0V	13	1.4V
6	9.2V (0V)	14	1.2V
7	0V	15	1.4V
8	1.2V	16	0.8V

IC5	1	0.6V	9	0.6V
	2	0.6V	10	0V
	3	0.6V	11	0.6V
	4	0.6V	12	2.8V
	5	0.6V	13	0.6V
	6	0.6V	14	0.6V
	7	0.6V	15	8.9V
	8	0.6V	16	2.8V

IC6	1	3.5V	5	3.5V
	2	3.5V	6	3.5V
	3	3.5V	7	3.5V
	4	3.5V	8	7.1V

IC7	1	4.1V	9	0V
	2	2.4V	10	2.3V (0V)
	3	0.9V	11	1.4V
	4	0V	12	0V
	5	1.4V	13	0.9V
	6	0V	14	0V
	7	7.7V	15	4.1V
	8	0.7V (0V)	16	2.4V

IC6,IC7

1	1.4V
2	0V
3	1.4V
4	0V
5	1.4V
6	1.41V
7	1.43V
8	6.8V
9	6.8V

Q1

B	5.5V
C	7.9V
E	5.0V

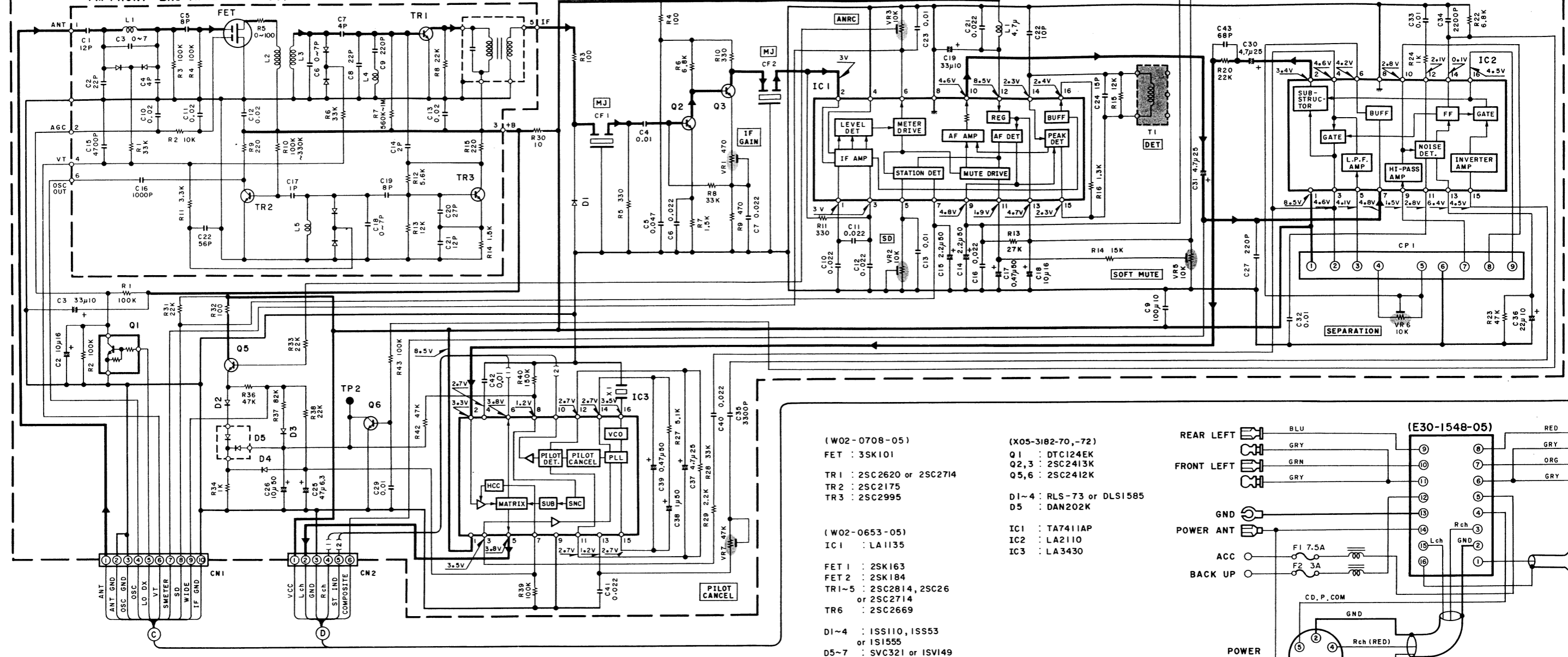
(X14-2062-70)

	B	C	E
Q1	—	8.8V	14.0V
Q2	0V	8.8V	14.0V
Q3	9.4V	—	8.8V
Q4	—	14.2V	9.4V
Q5	10V	—	9.4V
Q6	6.4V	13.8V	5.6V
Q7	0V	8.7V (0V)	8.8V
Q8	4.8V (0V)	—	0V
Q9	—	0V (8.7V)	8.8V
Q10	0V (4.8V)	—	0V
Q11	—	4.95V	5.0V
Q12	8.3V	—	0V

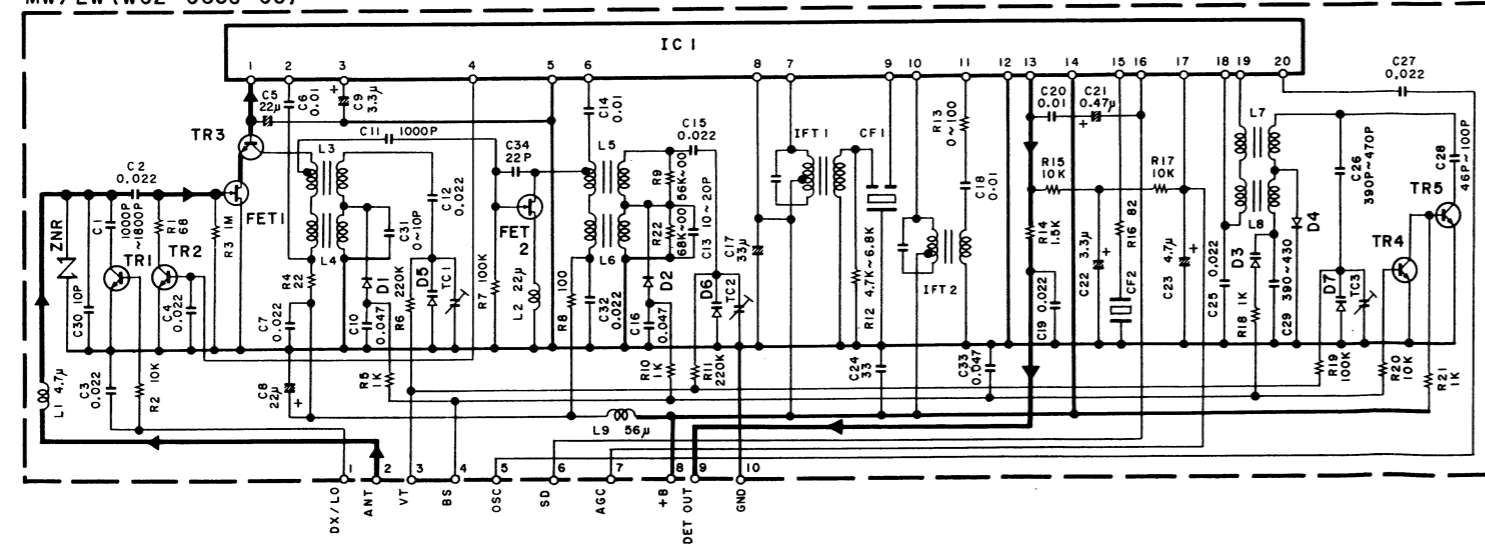
Refer to the schematic diagram for the values of resistors and capacitors.

## TUNER (X05-3182-70, -72)

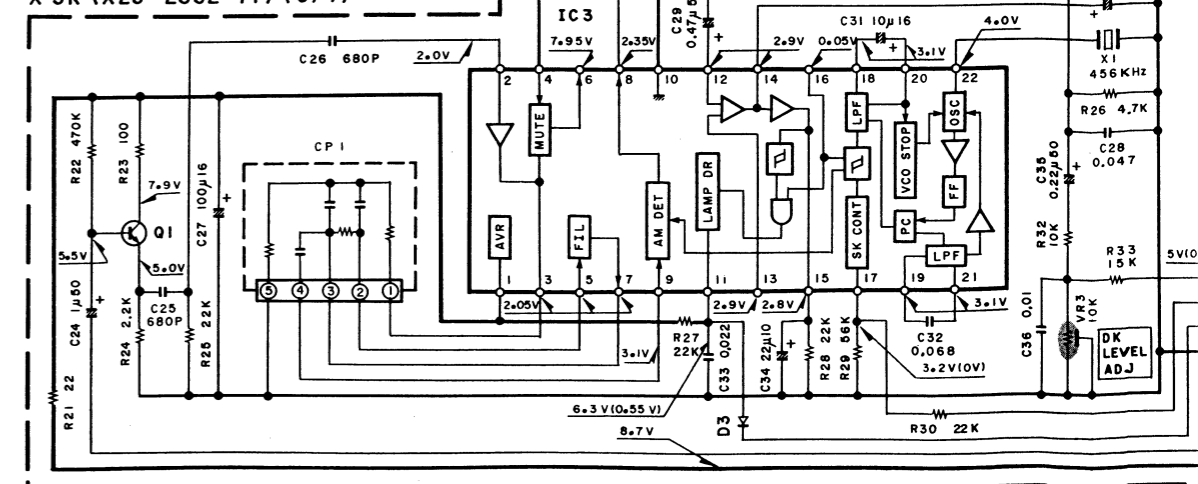
## FM FRONT-END (W02-0708-05)

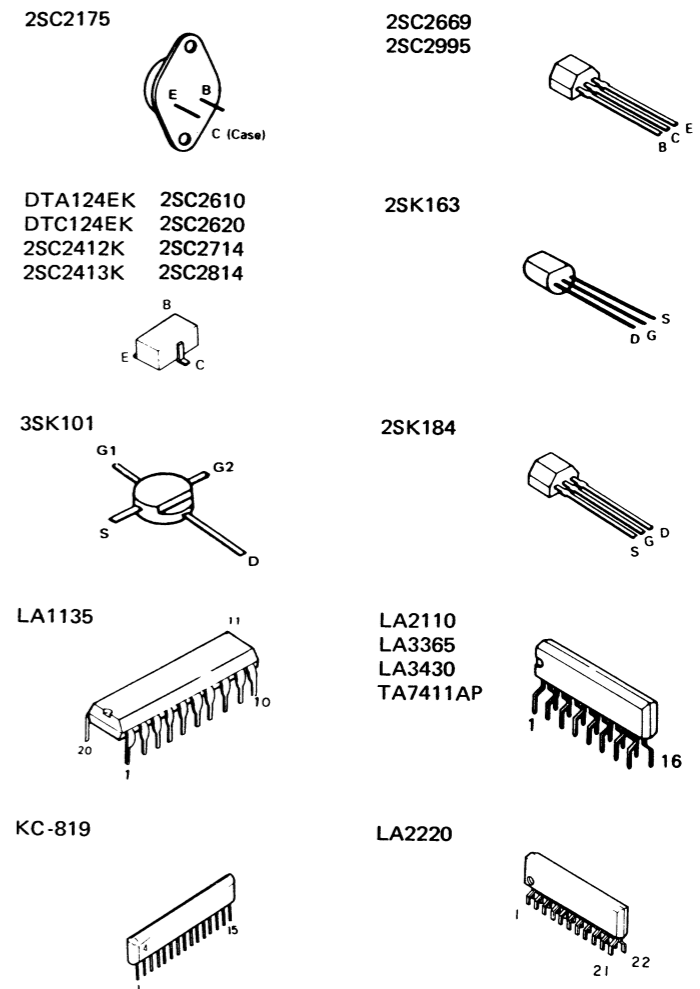
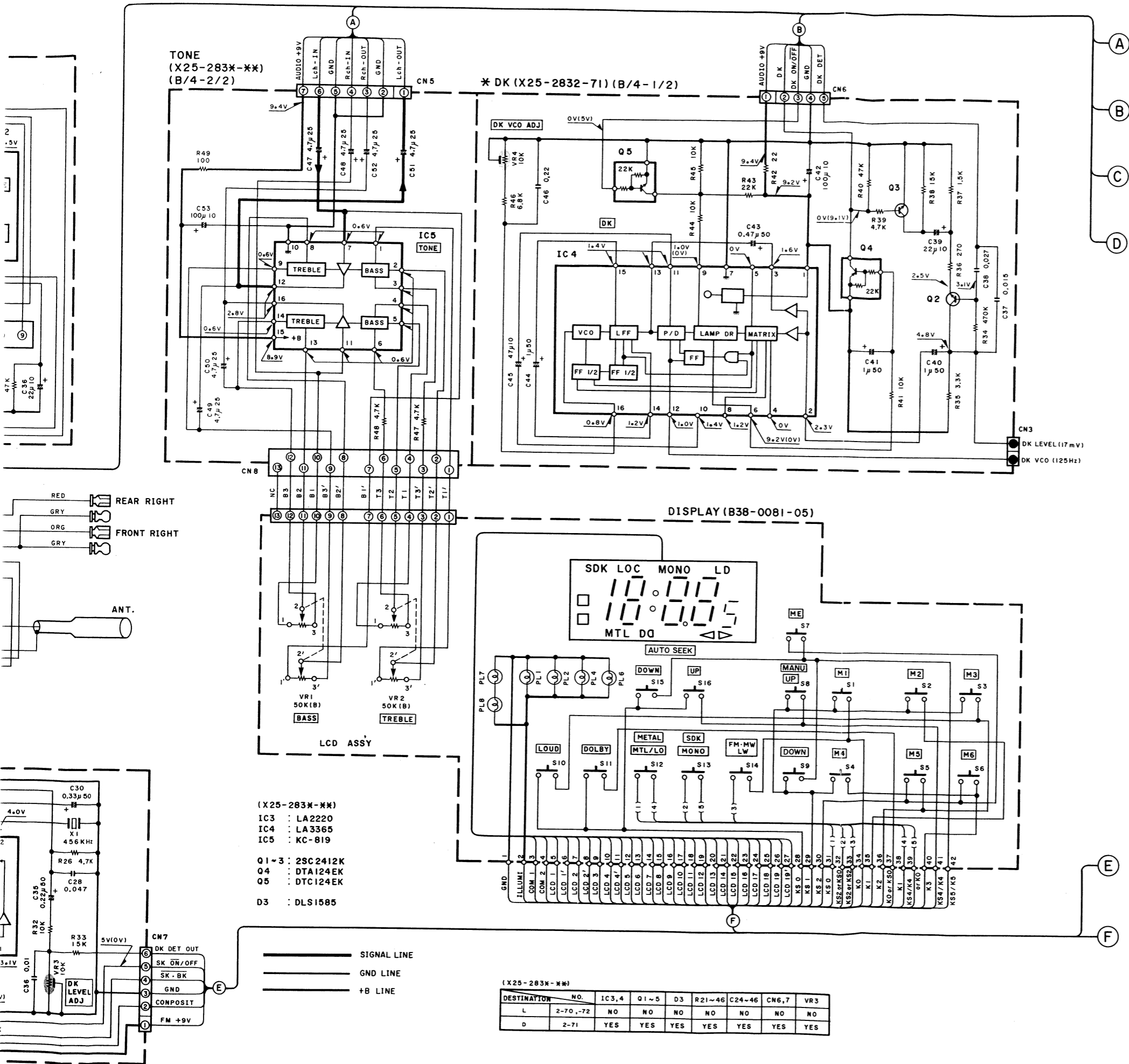


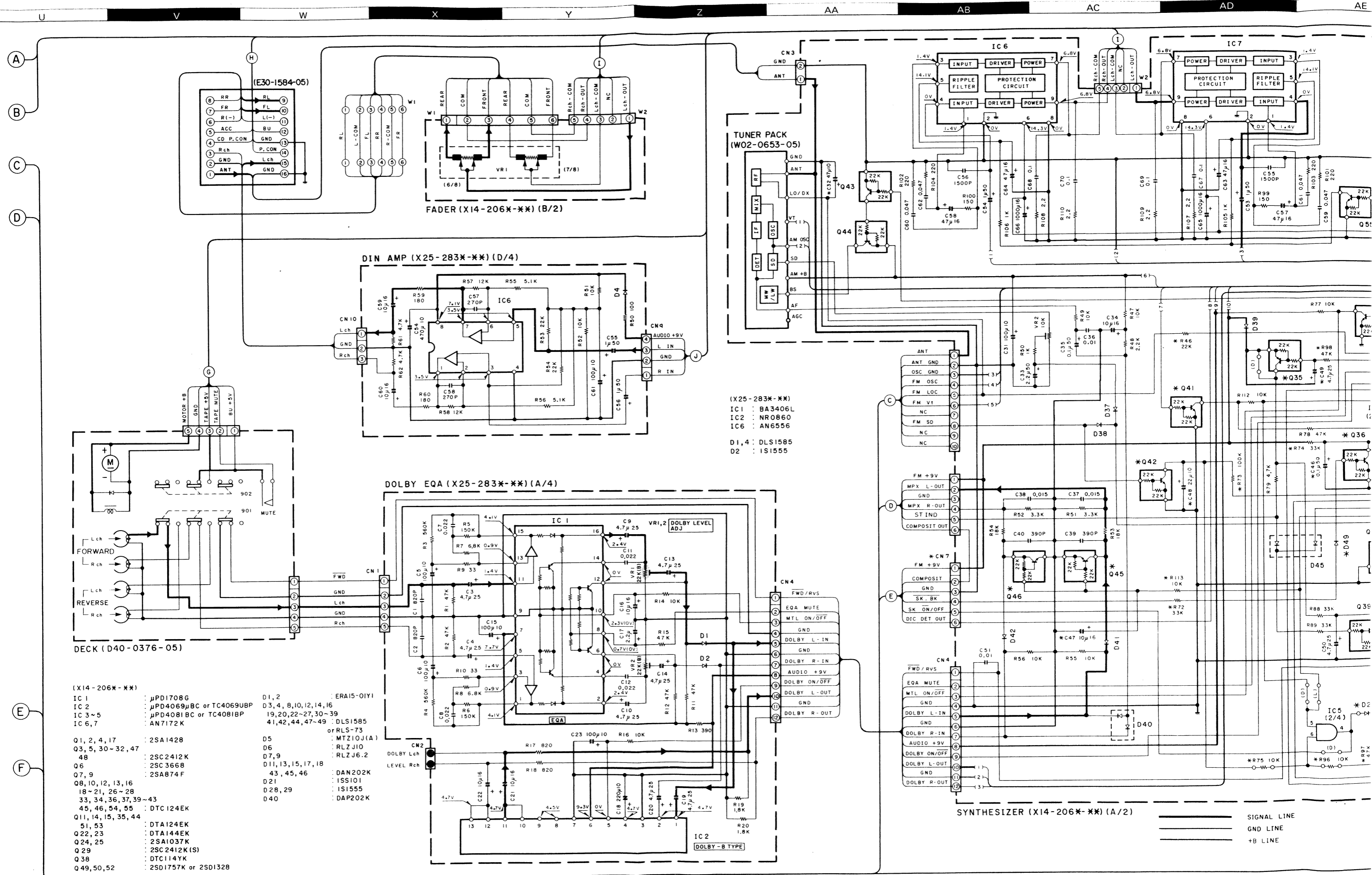
## MW/LW (W02-0653-05)

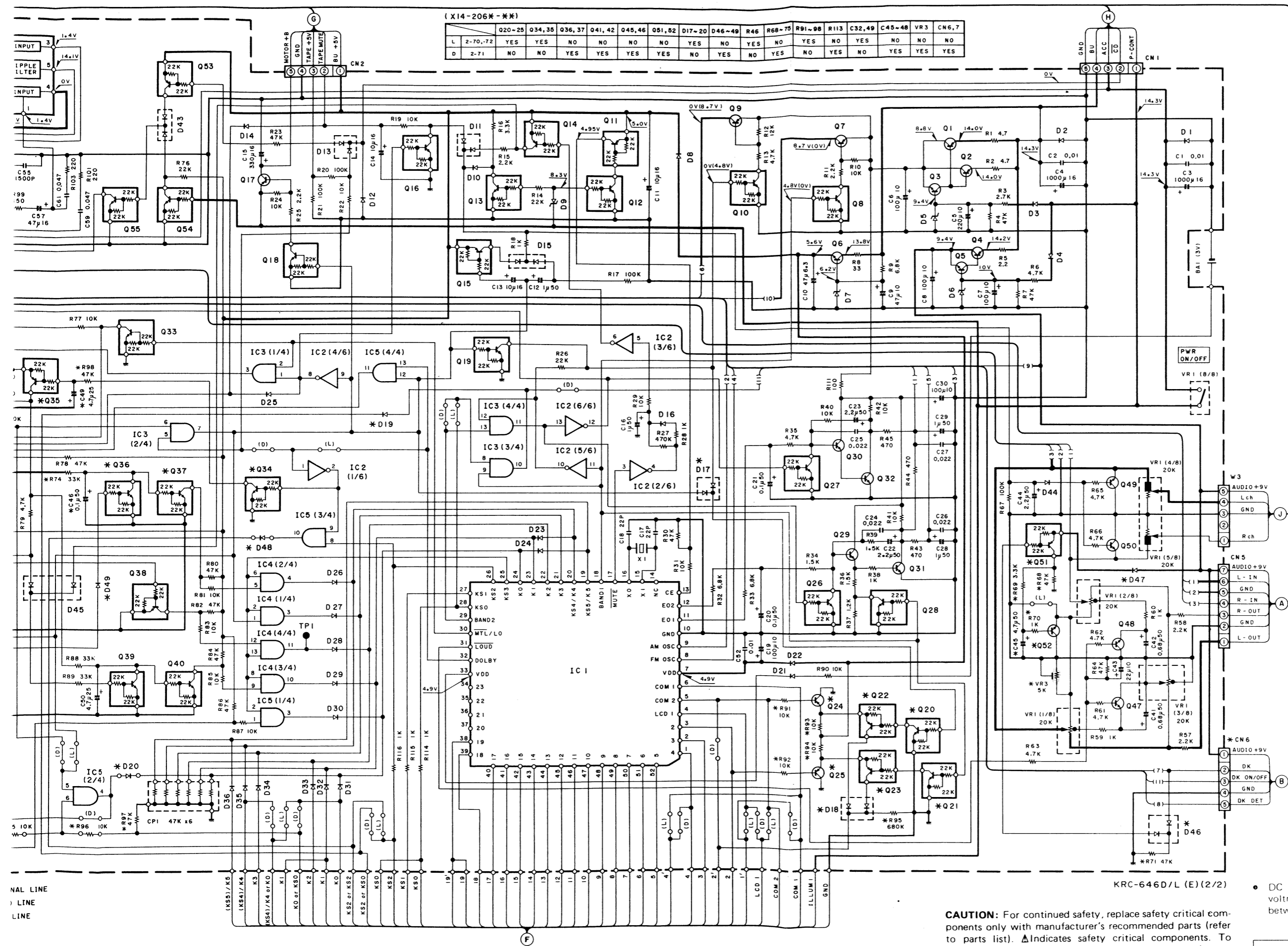


## \* SK (X25-2832-71) (C/4)









A diagram of a three-pin electrical plug. The pins are labeled E, C, and B from left to right. Pin E is the longest and is grounded. Pin C is the shortest and is the neutral line. Pin B is the middle length and is the live line.

A perspective view of a 14-pin DIP package. The package is rectangular with two rows of seven pins each. The pins are numbered 1 through 14. Pin 1 is at the bottom center, and pin 14 is at the top center. The package is shown from an angle that highlights its three-dimensional structure.

A diagram of a 16-pin DIP package. The package is rectangular with a notch on one side. Pins are shown extending from both sides of the package. The pins on the left side are numbered 8, 7, 6, 5, 4, 3, 2, and 1 from top to bottom. The pins on the right side are numbered 15, 14, 13, 12, 11, 10, 9, and 8 from top to bottom.

A perspective view of a 14-pin DIP package. The package is rectangular with a notch on one end. Pins are numbered 1 through 14, starting from the notch and going clockwise around the package.

Diagram 9 shows a 12-pin connector with a mounting bracket. The bracket has two screws and a central slot. The connector is labeled with the number 9.

A perspective view of a 16-pin DIP package. The pins are numbered 1 through 16, starting from the top-left pin and proceeding clockwise around the package.

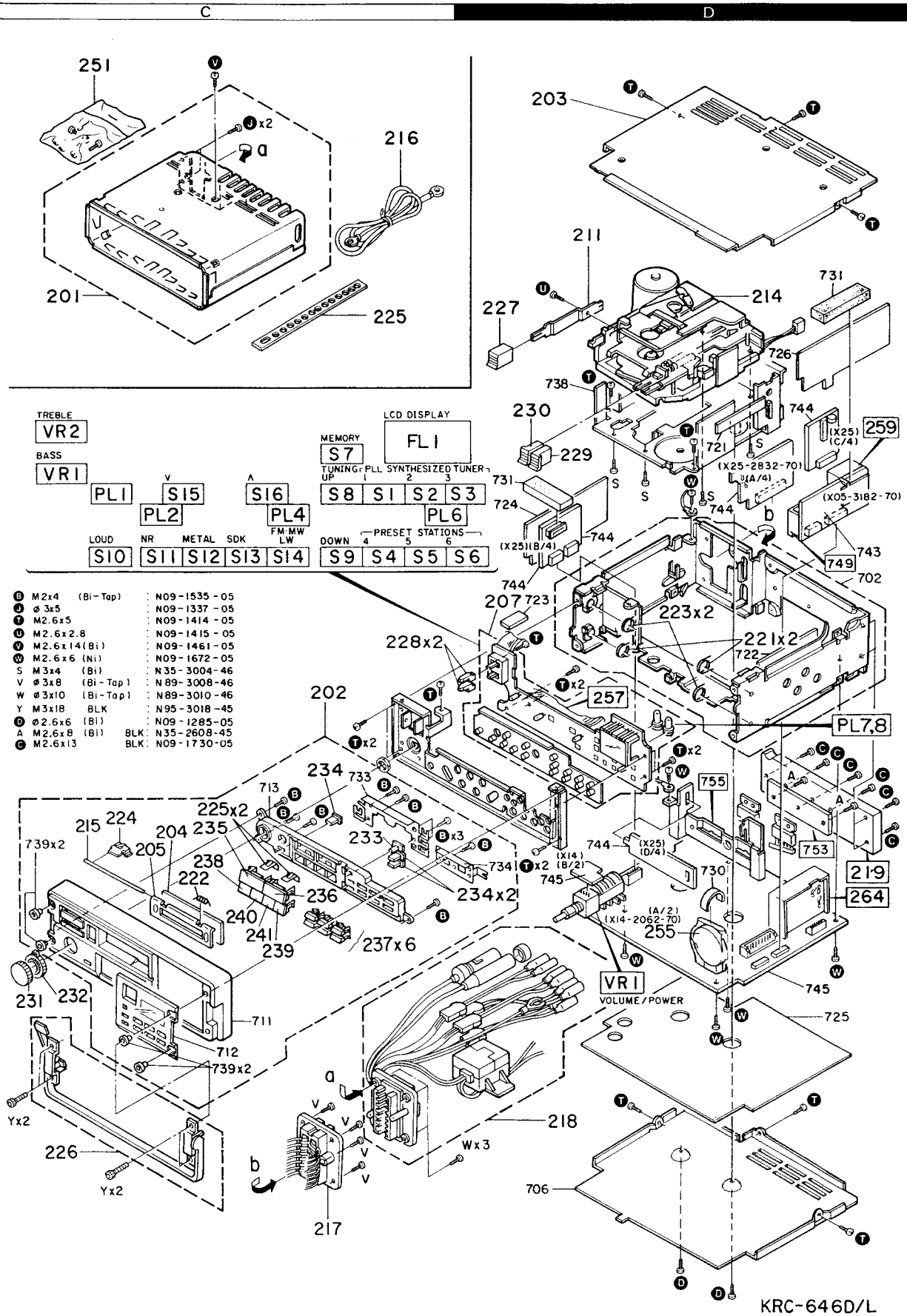
**CAUTION:** For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). **⚠**Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

- DC voltages are as measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments or/and units.

KRC-646D/L  
KENWOOD



## EXPLODED VIEW(UNIT)



## PARTS LIST

\* New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnés dans le Parts No. ne sont pas fournis.

Teile ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕向	Re- marks 備考
KRC-646D/L						
201	1C	*	A01-1430-33	METALLIC CABINET ASSY		
202	2C	*	A20-4998-02	PANEL ASSY	EE2E3	
202	2C	*	A20-4999-02	PANEL ASSY	E1	
202	2C	*	A20-5000-02	PANEL ASSY	T	
203	1D		A52-0096-03	TOP COVER		
204	2C		A52-0076-03	FRONT BOARD (CASSETTE LID)		
205	2C		A53-0836-03	CASSETTE LID	EE2E3	
205	2C		A53-0836-03	CASSETTE LID	E1	
205	2C	*	A53-0863-03	CASSETTE LID	T	
207	2D	*	B38-0081-05	LIQUID CRYSTAL		
-			B46-0100-00	WARRANTY CARD	EE1	
-			B46-0100-00	WARRANTY CARD	E2E3	
-			B46-0123-03	WARRANTY CARD	T	
-		*	B50-6431-00	INSTRUCTION MANUAL	EE2	
-		*	B50-6432-00	INSTRUCTION MANUAL	EE1	
-		*	B50-6432-00	INSTRUCTION MANUAL	E2E3	
-		*	B50-6433-00	INSTRUCTION MANUAL	E1	
-		*	B50-6434-00	INSTRUCTION MANUAL	T	
-			B58-0803-03	CAUTION CARD	E1	
-		*	B58-0841-04	CAUTION CARD		
211	1D		D10-1318-04	LEVER (EJECT)		
214	1D	*	D40-0376-05	CASSETTE MECHANISM ASSY		
215	2C		D21-0591-14	SHAFT (CASSETTE LID)		
216	1C		E30-0891-05	GROUND WIRE		
217	3C	*	E30-1584-15	CORD WITH CONNECTOR		
218	3D	*	E30-1548-05	CORD WITH CONNECTOR		
219	2D	*	F01-0694-33	HEAT SINK (REAR)		
F1			F05-7521-05	FUSE(7.5A) ACC		
F2			F06-3026-05	FUSE(3A) BACKUP		
221	2D		G01-1969-04	TORSION COIL SPRING		
222	2C		G01-1253-04	TORSION COIL SPRING(CASET LID)		
223	2D		G01-1436-14	TORSION COIL SPRING(CHASSIS)		
224	2C		G02-0171-24	FLAT SPRING (PANEL ASSY)		
225	2C	*	G02-0431-04	FLAT SPRING (UP,DOWN)		
-		*	H01-7318-04	ITEM CARTON CASE	EE2E3	
-		*	H01-7319-04	ITEM CARTON CASE	E1	
-		*	H01-7320-04	ITEM CARTON CASE	T	
-		*	H03-0845-04	OUTER CARTON CASE	EE2E3	
-		*	H03-0846-04	OUTER CARTON CASE	E1	
-		*	H03-0847-04	OUTER CARTON CASE	T	
-			H10-3330-03	POLYSTYRENE FOAMED FIXTURE		
-			H10-3331-03	POLYSTYRENE FOAMED FIXTURE		
-			H25-0173-04	PROTECTION BAG (300X350X0.05)		
-			H25-0226-04	PROTECTION BAG (180X300X0.05)		
225	1C		J54-0059-04	STAY		
-			J61-0067-05	WIRE BAND		
226	3C		K01-0078-03	HANDLE ASSY		
227	1D	*	K27-1364-14	KNOB (BUTTON) EJECT		
228	2C		K27-1645-04	KNOB (BASS, TREBLE)		
229	1D	*	K27-1651-14	KNOB (BUTTON) FF		
230	1D	*	K27-1652-14	KNOB (BUTTON) REW		

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Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕向	Re- marks 備考
231	3C		K29-0440-03	KNØB (POWER, VOLUME, BALANCE		
232	3C		K29-2259-04	KNØB (FADER)		
233	2C		K29-2582-04	KNØB (BUTTON) MEMORY		
234	2C, 2D		K29-2583-04	KNØB (BUTTON) LOUD, TONE		
235	2C		K29-2415-04	KNØB (BUTTON) DOWN		
236	2C		K29-2416-04	KNØB (BUTTON) UP		
237	3C		K29-2442-04	KNØB (BUTTON) PRESET STATIONS		
238	2C		K29-2419-14	KNØB (BUTTON) DOLBY		
239	3C	*	K29-2681-04	KNØB (BUTTON) FM, MW/LW		
240	3C		K29-2420-14	KNØB (BUTTON) MTL/LØ	EE2E3T	
240	3C	*	K29-2647-04	KNØB (BUTTON) METAL	E1	
241	3C	*	K29-2529-04	KNØB (BUTTON) SDK	E1	
241	3C	*	K29-2530-04	KNØB (BUTTON) MONØ	EE2E3T	
251	1C		N99-0099-05	SCREW SET		
B	2C, 2D		N09-1535-05	TAPTITE SCREW (M2X4)		
C	2D		N09-1730-05	TAPPING SCREW (HEAT SINK)		
D	3D		N09-1285-05	SCREW (Ø2.6X6)		
J	1C		N09-1337-05	TAPTITE SCREW (Ø3X5)		
T	2D, 3D		N09-1414-05	TAPTITE SCREW (M2.6X5)		
U	1D		N09-1415-05	MACHINE SCREW (M2.6X2.8)		
V	1C		N09-1461-05	STEPPED SCREW (M2.6X14)		
W	3D		N09-1672-05	TAPTITE SCREW (M2.6X6)		
255	2D	*	W09-0046-05	BATTERY		
<b>LIQUID CRYSTAL (B38-0081-05)</b>						
FL1	2D	*	B38-0077-18	LIQUID CRYSTAL		
PL1	2C		B38-1170-08	LAMP		
PL2	2C	*	B38-1171-08	LAMP		
PL4	2C	*	B38-1171-08	LAMP		
PL6	2C	*	B38-1171-08	LAMP		
PL7 ,8	2D	*	B38-1169-08	LAMP (LCD)		
-			F15-0273-08	HOLDER (PL7,8)		
-			F15-0274-08	HOLDER (PL1)		
257	2C	*	J25-5614-08	FLEXIBLE PC BOARD		
VR1 ,2	1C, 1D		R13-4038-08	POTENTIOMETER (50KB) TREB, BASS		
<b>TUNER UNIT (X05-3182-70, -72)</b>						
C2			C90-0478-05	ELECTRØ 10UF 16WV		
C3			C90-0831-05	ELECTRØ 33UF 10WV		
C4			CK73FB1H103K	CHIP C 0.010UF K		
C5			CK73EB1H473K	CHIP C 0.047UF K		
C6 ,7		*	CK73FB1H223K	CHIP C 0.022UF K		
C9			CE04DW1A101M	ELECTRØ 100UF 10WV		
C10 -12		*	CK73FB1H223K	CHIP C 0.022UF K		
C13			CK73FB1H103K	CHIP C 0.010UF K		
C14 ,15			C90-0508-05	ELECTRØ 2.2UF 50WV		
C16		*	CK73FB1H223K	CHIP C 0.022UF K		
C17			C90-0484-05	ELECTRØ 0.47UF 50WV		
C18			C90-0478-05	ELECTRØ 10UF 16WV		
C19			C90-0831-05	ELECTRØ 33UF 10WV		
C21		*	CK73FB1H223K	CHIP C 0.022UF K		
C22		*	CC73FRH1H100D	CHIP C 10PF D		
C23			CK73FB1H103K	CHIP C 0.010UF K		

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C24		*	CC73FCH1H150J	CHIP C 15PF J		
C25			C90-0495-05	ELECTR0 47UF 6.3WV		
C26			C90-0478-05	ELECTR0 10UF 16WV		
C27		*	CC73FSL1H151J	CHIP C 150PF J		
C29			CK73FB1H103K	CHIP C 0.010UF K		
C30 ,31			C90-0482-05	ELECTR0 4.7UF 25WV		
C32 ,33			CK73FB1H103K	CHIP C 0.010UF K		
C34			CK73FB1H222K	CHIP C 2200PF K		
C35			CK73FB1H332K	CHIP C 3300PF K		
C36			CS15E1A220M	TANTAL 22UF 10WV		
C37			C90-0482-05	ELECTR0 4.7UF 25WV		
C38			CE04CW1H010M	ELECTR0 1.0UF 50WV		
C39			CE04CW1HR47M	ELECTR0 0.47UF 50WV		
C40 ,41		*	CK73FB1H223K	CHIP C 0.022UF K		
C42			CK73FB1H103K	CHIP C 0.010UF K		
C43		*	CC73FSL1H680J	CHIP C 68PF J		
CN1		*	E40-3397-05	PIN ASSY		
CN2		*	E40-3393-05	PIN ASSY		
W1		*	E31-3571-05	WIRING HARNESS		
CF1 ,2			L72-0135-05	CERAMIC FILTER		
L1			L40-4791-16	SMALL FIXED INDUCTOR(4.7UH,K)		
T1		*	L30-0450-05	FM IFT		
X1			L78-0208-05	RESONATOR (18.950KHZ)		
-			R92-0670-05	CHIP R 0 OHM		
CP1			R90-0282-05	COMPOSITE ELEMENTS		
R1 ,2			RK73FB2A104J	CHIP R 100K J 1/10W		
R3 ,4			RK73FB2A101J	CHIP R 100 J 1/10W		
R5			RK73FB2A331J	CHIP R 330 J 1/10W		
R6			RK73FB2A682J	CHIP R 6.8K J 1/10W		
R7			RK73FB2A152J	CHIP R 1.5K J 1/10W		
R8			RK73FB2A333J	CHIP R 33K J 1/10W		
R9			RK73FB2A471J	CHIP R 470 J 1/10W		
R10 ,11			RK73FB2A331J	CHIP R 330 J 1/10W		
R13			RK73FB2A273J	CHIP R 27K J 1/10W		
R14			RK73FB2A153J	CHIP R 15K J 1/10W		
R15			RK73FB2A123J	CHIP R 12K J 1/10W		
R16		*	RK73FB2A132J	CHIP R 1.3K J 1/10W		
R20			RK73FB2A223J	CHIP R 22K J 1/10W		
R22			RK73FB2A682J	CHIP R 6.8K J 1/10W		
R23			RK73FB2A473J	CHIP R 47K J 1/10W		
R24			RK73FB2A102J	CHIP R 1.0K J 1/10W		
R27			RK73FB2A512J	CHIP R 5.1K J 1/10W		
R28			RK73FB2A333J	CHIP R 33K J 1/10W		
R29			RK73FB2A222J	CHIP R 2.2K J 1/10W		
R30		*	RK73FB2A100J	CHIP R 10 J 1/10W		
R31			RK73FB2A223J	CHIP R 22K J 1/10W		
R32			RK73FB2A101J	CHIP R 100 J 1/10W		
R33			RK73FB2A223J	CHIP R 22K J 1/10W		
R34			RK73FB2A102J	CHIP R 1.0K J 1/10W		
R36			RK73FB2A473J	CHIP R 47K J 1/10W		
R37		*	RK73FB2A823J	CHIP R 82K J 1/10W		
R38			RK73FB2A223J	CHIP R 22K J 1/10W		
R39			RK73FB2A104J	CHIP R 100K J 1/10W		
R40			RK73FB2A154J	CHIP R 150K J 1/10W		
R42			RK73FB2A473J	CHIP R 47K J 1/10W		

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C55 ,56		*	CK73EB1H152K	CHIP C 1500PF K		
C57 ,58			CE04DW1C470M	ELECTR0 47UF 16WV		
C59 -62			CF92V1H473J	MF 0.047UF J		
C63 ,64			CE04DW1C470M	ELECTR0 47UF 16WV		
C65 ,66			C90-1403-05	ELECTR0 1000UF 16WV		
C67 -70			CF92V1H104J	MF 0.10UF J		
CN1			E40-3240-05	PIN ASSY		
CN2			E40-3093-05	PIN ASSY		
CN3			E40-3237-05	PIN ASSY		
CN4			E40-3491-05	PIN ASSY		
CN5			E40-3486-05	PIN ASSY		
CN6			E40-3484-05	PIN ASSY	E1	
CN7			E40-3485-05	PIN ASSY	E1	
W1		*	E31-4000-05	WIRING HARNESS		
W2		*	E31-3999-05	WIRING HARNESS		
W3		*	E31-3944-05	WIRING HARNESS		
W4		*	E31-3945-05	WIRING HARNESS		
W5		*	E31-3946-05	WIRING HARNESS		
W6 ,7		*	E31-3947-05	WIRING HARNESS		
W8		*	E31-3948-05	WIRING HARNESS		
W9		*	E31-3949-05	WIRING HARNESS		
W10			E31-3578-05	WIRING HARNESS		
W11			E31-3573-05	WIRING HARNESS		
-			J61-0067-05	WIRE BAND		
X1			L77-0585-05	CRYSTAL RESONATOR(4.5MHZ)		
CP1			R90-0472-05	MULTIPLE RESISTOR		
J1			R92-0338-05	CLYND CHIP R 0 0HM	EE2E3T	
J1 -13			R92-0338-05	CLYND CHIP R 0 0HM	E1	
J4 -14			R92-0338-05	CLYND CHIP R 0 0HM	EE2E3T	
J15			R92-0338-05	CLYND CHIP R 0 0HM	E1	
J18 -52			R92-0338-05	CLYND CHIP R 0 0HM	E1	
J19 -34			R92-0338-05	CLYND CHIP R 0 0HM	EE2E3T	
J36 -49			R92-0338-05	CLYND CHIP R 0 0HM	EE2E3T	
J54			R92-0338-05	CLYND CHIP R 0 0HM	E1	
J54 -63			R92-0338-05	CLYND CHIP R 0 0HM	EE2E3T	
J57 ,58			R92-0338-05	CLYND CHIP R 0 0HM	E1	
J61 -63			R92-0338-05	CLYND CHIP R 0 0HM	E1	
J65 -86			R92-0338-05	CLYND CHIP R 0 0HM	E1	
J66 ,67			R92-0338-05	CLYND CHIP R 0 0HM	EE2E3T	
J69 -83			R92-0338-05	CLYND CHIP R 0 0HM	EE2E3T	
J86 ,87			R92-0338-05	CLYND CHIP R 0 0HM	EE2E3T	
J88 -92			R92-0338-05	CLYND CHIP R 0 0HM	E1	
J101-106			R92-0670-05	CHIP R 0 0HM	EE2E3T	
J101-112			R92-0670-05	CHIP R 0 0HM	E1	
J111-127			R92-0670-05	CHIP R 0 0HM	EE2E3T	
J115-119			R92-0670-05	CHIP R 0 0HM	E1	
J121-128			R92-0670-05	CHIP R 0 0HM	E1	
J129-131			R92-0670-05	CHIP R 0 0HM	EE2E3T	
J130			R92-0670-05	CHIP R 0 0HM	E1	
J132-149			R92-0670-05	CHIP R 0 0HM	E1	
J133-140			R92-0670-05	CHIP R 0 0HM	EE2E3T	
J144-151			R92-0670-05	CHIP R 0 0HM	EE2E3T	

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J152			R92-0670-05	CHIP R 0 0HM	E1	
J153			R92-0670-05	CHIP R 0 0HM	EE2E3T	
J154, 155			R92-0670-05	CHIP R 0 0HM	E1	
J201			R92-0150-05	JUMPER REST 0 0HM		
J270			R92-0150-05	JUMPER REST 0 0HM		
J275			R92-0150-05	JUMPER REST 0 0HM		
R1 ,2			RD41DB2B4R7J	CYLND CHIP R 4.7 J 1/8W		
R3			RD41DB2B272J	CYLND CHIP R 2.7K J 1/8W		
R4			RK73FB2A473J	CHIP R 47K J 1/10W		
R5			RD41DB2B2R2J	CYLND CHIP R 2.2 J 1/8W		
R6			RD41DB2B472J	CYLND CHIP R 4.7K J 1/8W		
R7			RD41DB2B473J	CYLND CHIP R 47K J 1/8W		
R8			RD41DB2B330J	CYLND CHIP R 33 J 1/8W		
R9			RD41DB2B682J	CYLND CHIP R 6.8K J 1/8W		
R10			RD41DB2B103J	CYLND CHIP R 10K J 1/8W		
R11			RD41DB2B222J	CYLND CHIP R 2.2K J 1/8W		
R12			RD41DB2B123J	CYLND CHIP R 12K J 1/8W		
R13			RD41DB2B472J	CYLND CHIP R 4.7K J 1/8W		
R14			RK73FB2A223J	CHIP R 22K J 1/10W		
R15			RK73FB2A222J	CHIP R 2.2K J 1/10W		
R16			RK73FB2A332J	CHIP R 3.3K J 1/10W		
R17			RK73FB2A104J	CHIP R 100K J 1/10W		
R18			RK73FB2A102J	CHIP R 1.0K J 1/10W		
R19			RK73FB2A103J	CHIP R 10K J 1/10W		
R20 ,21			RK73FB2A104J	CHIP R 100K J 1/10W		
R22			RD41DB2B103J	CYLND CHIP R 10K J 1/8W		
R23			RK73FB2A473J	CHIP R 47K J 1/10W		
R24			RD41DB2B103J	CYLND CHIP R 10K J 1/8W		
R25			RD41DB2B222J	CYLND CHIP R 2.2K J 1/8W		
R26			RK73FB2A223J	CHIP R 22K J 1/10W		
R27			RK73FB2A474J	CHIP R 470K J 1/10W		
R28			RD41DB2B102J	CYLND CHIP R 1.0K J 1/8W		
R29			RK73FB2A103J	CHIP R 10K J 1/10W		
R30			RK73FB2A473J	CHIP R 47K J 1/10W		
R31			RD41DB2B103J	CYLND CHIP R 10K J 1/8W		
R32 ,33			RD41DB2B682J	CYLND CHIP R 6.8K J 1/8W		
R34			RK73FB2A152J	CHIP R 1.5K J 1/10W		
R35			RK73FB2A472J	CHIP R 4.7K J 1/10W		
R36			RK73FB2A152J	CHIP R 1.5K J 1/10W		
R37			RK73FB2A122J	CHIP R 1.2K J 1/10W		
R38			RK73FB2A102J	CHIP R 1.0K J 1/10W		
R39			RK73FB2A152J	CHIP R 1.5K J 1/10W		
R40 -42			RK73FB2A103J	CHIP R 10K J 1/10W		
R43 -45			RK73FB2A471J	CHIP R 470 J 1/10W		
R46			RD41DB2B223J	CYLND CHIP R 22K J 1/8W	EE2E3T	
R47			RD41DB2B103J	CYLND CHIP R 10K J 1/8W		
R48			RD41DB2B222J	CYLND CHIP R 2.2K J 1/8W		
R49			RD41DB2B103J	CYLND CHIP R 10K J 1/8W		
R50			RK73FB2A102J	CHIP R 1.0K J 1/10W		
R51 ,52			RD41DB2B332J	CYLND CHIP R 3.3K J 1/8W		
R53 ,54			RD41DB2B183J	CYLND CHIP R 18K J 1/8W		
R55 ,56			RD41DB2B103J	CYLND CHIP R 10K J 1/8W		
R57 ,58			RD41DB2B222J	CYLND CHIP R 2.2K J 1/8W		
R59 ,60			RD41DB2B102J	CYLND CHIP R 1.0K J 1/8W		
R61 -63			RD41DB2B472J	CYLND CHIP R 4.7K J 1/8W		

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R64			RK73FB2A473J	CHIP R 47K J 1/10W		
R65			RK73FB2A472J	CHIP R 4.7K J 1/10W		
R66			RD41DB2B472J	CYLND CHIP R 4.7K J 1/8W		
R67			RD41DB2B104J	CYLND CHIP R 100K J 1/8W		
R68			RD41DB2B473J	CYLND CHIP R 47K J 1/8W	E1	
R69			RD41DB2B332J	CYLND CHIP R 3.3K J 1/8W	E1	
R70			RD41DB2B102J	CYLND CHIP R 1.0K J 1/8W	E1	
R71			RK73FB2A473J	CHIP R 47K J 1/10W	E1	
R72			RK73FB2A333J	CHIP R 33K J 1/10W	E1	
R73			RK73FB2A104J	CHIP R 100K J 1/10W	E1	
R74			RK73FB2A333J	CHIP R 33K J 1/10W	E1	
R75			RD41DB2B103J	CYLND CHIP R 10K J 1/8W	E1	
R76			RK73FB2A223J	CHIP R 22K J 1/10W		
R77			RK73FB2A103J	CHIP R 10K J 1/10W		
R78			RD41DB2B473J	CYLND CHIP R 47K J 1/8W		
R79			RK73FB2A472J	CHIP R 4.7K J 1/10W		
R80			RK73FB2A473J	CHIP R 47K J 1/10W		
R81			RK73FB2A103J	CHIP R 10K J 1/10W		
R82			RK73FB2A473J	CHIP R 47K J 1/10W		
R83			RK73FB2A103J	CHIP R 10K J 1/10W		
R84			RK73FB2A473J	CHIP R 47K J 1/10W		
R85			RD41DB2B103J	CYLND CHIP R 10K J 1/8W		
R86			RK73FB2A473J	CHIP R 47K J 1/10W		
R87			RK73FB2A103J	CHIP R 10K J 1/10W		
R88			RK73FB2A333J	CHIP R 33K J 1/10W		
R89			RD41DB2B333J	CYLND CHIP R 33K J 1/8W		
R90			RK73FB2A103J	CHIP R 10K J 1/10W		
R91 ,92			RD41DB2B103J	CYLND CHIP R 10K J 1/8W	EE2E3T	
R93			RK73FB2A103J	CHIP R 10K J 1/10W	EE2E3T	
R94			RD41DB2B103J	CYLND CHIP R 10K J 1/8W	EE2E3T	
R95			RD41DB2B684J	CYLND CHIP R 680K J 1/8W	EE2E3T	
R96			RD41DB2B103J	CYLND CHIP R 10K J 1/8W	EE2E3T	
R97 ,98			RK73FB2A473J	CHIP R 47K J 1/10W	EE2E3T	
R99 ,100			RD41DB2B151J	CYLND CHIP R 150 J 1/8W		
R101-104			RD41DB2B221J	CYLND CHIP R 220 J 1/8W		
R105			RK73FB2A102J	CHIP R 1.0K J 1/10W		
R106			RD41DB2B102J	CYLND CHIP R 1.0K J 1/8W		
R107-110			RD41DB2B2R2J	CYLND CHIP R 2.2 J 1/8W		
R111			RD41DB2B101J	CYLND CHIP R 100 J 1/8W		
R112			RD41DB2B103J	CYLND CHIP R 10K J 1/8W		
R113			RD41DB2B103J	CYLND CHIP R 10K J 1/8W	E1	
R114			RK73FB2A102J	CHIP R 1.0K J 1/10W		
R115			RD41DB2B102J	CYLND CHIP R 1.0K J 1/8W		
VR1	3D		R24-3009-05	POTENTIOMETER(PWR,VOL,BAL,FAD)		
VR2			R12-3096-05	TRIMMING PNT. (10K)ST&P LEVEL		
VR3			R12-2036-05	TRIMMING PNT. (DK LEVEL)	E1	
D1 ,2			ERA15-01Y1	DIODE		
D3 ,4			DLS1585	DIODE		
D3 ,4			RLS-73	DIODE		
D5		*	MTZ10J(A)	ZENER DIODE		
D6			RLZJ10	ZENER DIODE		
D7			RLZJ6.2	ZENER DIODE		
D8			DLS1585	DIODE		
D8			RLS-73	DIODE		

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D9			RLZJ6.2	ZENER DIODE		
D10			DLS1585	DIODE		
D10			RLS-73	DIODE		
D11			DAN202K	DIODE		
D12			DLS1585	DIODE		
D12			RLS-73	DIODE		
D13			DAN202K	DIODE		
D14			DLS1585	DIODE		
D14			RLS-73	DIODE		
D15			DAN202K	DIODE		
D16			DLS1585	DIODE		
D16			RLS-73	DIODE		
D17 ,18			DAN202K	DIODE	EE2E3T	
D19 ,20			DLS1585	DIODE	EE2E3T	
D19 ,20			RLS-73	DIODE	EE2E3T	
D21			1S5101	DIODE		
D22 -27			DLS1585	DIODE		
D22 -27			RLS-73	DIODE		
D28 ,29			1S1555	DIODE		
D30 -39			DLS1585	DIODE		
D30 -39			DLS1585	DIODE	E1	
D40			DAN202K	DIODE		
D41 ,42			DLS1585	DIODE		
D41 ,42			RLS-73	DIODE		
D43			DAN202K	DIODE		
D44			DLS1585	DIODE		
D44			RLS-73	DIODE		
D45			DAN202K	DIODE		
D46			DAN202K	DIODE	E1	
D47 -49			DLS1585	DIODE	E1	
D47 -49			RLS-73	DIODE	E1	
IC1			UPD1708G-637-00	IC(DIGITAL TUNING SYSTEM)QNT)		
IC2			TC4069UBP	IC(INVERTER X6)		
IC2			UPD4069UBC	IC(INVERTER X6)		
IC3 -5			TC4081BP	IC(AND X4)		
IC3 -5			UPD4081BC	IC(AND X4)		
IC6 ,7			AN7172K	IC(POWER AMP)		
Q1 ,2			2SA142B	TRANSISTOR		
Q3			2SC2412K	TRANSISTOR		
Q4			2SA142B	TRANSISTOR		
Q5			2SC2412K	TRANSISTOR		
Q6			2SC366B	TRANSISTOR		
Q7			2SA874F	TRANSISTOR		
Q8			DTC124EK	DIGITAL TRANSISTOR		
Q9			2SA874F	TRANSISTOR		
Q10			DTC124EK	DIGITAL TRANSISTOR		
Q11			DTA124EK	DIGITAL TRANSISTOR		
Q12 ,13			DTC124EK	DIGITAL TRANSISTOR		
Q14 ,15			DTA124EK	DIGITAL TRANSISTOR		
Q16			DTC124EK	DIGITAL TRANSISTOR		
Q17			2SA142B	TRANSISTOR		
Q18 -21			DTC124EK	DIGITAL TRANSISTOR	EE2E3T	
Q18 ,19			DTC124EK	DIGITAL TRANSISTOR	E1	
Q22 ,23			DTA144EK	DIGITAL TRANSISTOR	EE2E3T	
Q24 ,25			2SA1037K	TRANSISTOR	EE2E3T	

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C42			CE04DW1A101M	ELECTR0 100UF 10WV	E1	
C43			C90-0484-05	ELECTR0 0.47UF 50WV	E1	
C44			CE04DW1H010M	ELECTR0 1.0UF 50WV	E1	
C45			CE04DW1A470M	ELECTR0 47UF 10WV	E1	
C46			CF92V1H224J	MF 0.22UF J	E1	
C47 -52			CE04DW1E4R7M	ELECTR0 4.7UF 25WV		
C53			CE04DW1A101M	ELECTR0 100UF 10WV		
C54			CE04DW1A471M	ELECTR0 470UF 10WV		
C55 ,56			CE04DW1H010M	ELECTR0 1.0UF 50WV		
C57 ,58			CK41DB1H271K	CYLND CHIP C 270PF K		
C59 ,60			CE04DW1C100M	ELECTR0 10UF 16WV		
C61			CE04DW1A101M	ELECTR0 100UF 10WV		
CN1			E40-3093-05	PIN ASSY		
CN2			E40-3640-05	PIN ASSY		
CN3			E40-3445-15	SOCKET FOR PIN ASSY	E1	
CN4			E40-3470-05	PIN ASSY		
CN5			E40-3465-05	PIN ASSY		
CN6			E40-3463-05	PIN ASSY	E1	
CN7			E40-3464-05	PIN ASSY	E1	
CN8			E10-1303-05	FLAT CABLE CONNECTOR		
CN9			E40-3239-05	PIN ASSY		
CN10			E40-3238-05	PIN ASSY		
X1			L78-0208-05	RESONATOR (18.950KHZ)	E1	
CP1			R90-0468-05	COMPOSITE ELEMENTS	E1	
J1 ,2			R92-0338-05	CYLND CHIP R 0 OHM		
J7 ,8			R92-0338-05	CYLND CHIP R 0 OHM	E1	
J10			R92-0338-05	CYLND CHIP R 0 OHM		
R1 ,2			RD41DB2B473J	CYLND CHIP R 47K J 1/8W		
R3 ,4			RD41DB2B564J	CYLND CHIP R 560K J 1/8W		
R5 ,6			RD41DB2B154J	CYLND CHIP R 150K J 1/8W		
R7 ,8			RD41DB2B682J	CYLND CHIP R 6.8K J 1/8W		
R9 ,10			RD41DB2B330J	CYLND CHIP R 33 J 1/8W		
R11 ,12			RD41DB2B473J	CYLND CHIP R 47K J 1/8W		
R13			RD41DB2B391J	CYLND CHIP R 390 J 1/8W		
R14			RD41DB2B103J	CYLND CHIP R 10K J 1/8W		
R15			RD41DB2B473J	CYLND CHIP R 47K J 1/8W		
R16			RD41DB2B103J	CYLND CHIP R 10K J 1/8W		
R17 ,18			RD41DB2B821J	CYLND CHIP R 820 J 1/8W		
R19 ,20			RD41DB2B182J	CYLND CHIP R 1.8K J 1/8W		
R21			RD41DB2B220J	CYLND CHIP R 22 J 1/8W	E1	
R22			RD41DB2B474J	CYLND CHIP R 470K J 1/8W	E1	
R23			RD41DB2B101J	CYLND CHIP R 100 J 1/8W	E1	
R24			RD41DB2B222J	CYLND CHIP R 2.2K J 1/8W	E1	
R25			RD41DB2B223J	CYLND CHIP R 22K J 1/8W	E1	
R26			RD41DB2B472J	CYLND CHIP R 4.7K J 1/8W	E1	
R27 ,28			RD41DB2B223J	CYLND CHIP R 22K J 1/8W	E1	
R29			RD41DB2B563J	CYLND CHIP R 56K J 1/8W	E1	
R30			RD41DB2B223J	CYLND CHIP R 22K J 1/8W	E1	
R32			RD41DB2B103J	CYLND CHIP R 10K J 1/8W	E1	
R33			RD41DB2B153J	CYLND CHIP R 15K J 1/8W	E1	
R34			RD41DB2B474J	CYLND CHIP R 470K J 1/8W	E1	
R35			RD41DB2B332J	CYLND CHIP R 3.3K J 1/8W	E1	
R36			RD41DB2B271J	CYLND CHIP R 270 J 1/8W	E1	

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R37			RD41DB2B152J	CYLND CHIP R 1.5K J 1/8W	E1	
R38			RD41DB2B153J	CYLND CHIP R 15K J 1/8W	E1	
R39			RD41DB2B472J	CYLND CHIP R 4.7K J 1/8W	E1	
R40			RD41DB2B473J	CYLND CHIP R 47K J 1/8W	E1	
R41			RD41DB2B103J	CYLND CHIP R 10K J 1/8W	E1	
R42			RD41DB2B220J	CYLND CHIP R 22 J 1/8W	E1	
R43			RD41DB2B223J	CYLND CHIP R 22K J 1/8W	E1	
R44 ,45			RD41DB2B103J	CYLND CHIP R 10K J 1/8W	E1	
R46			RD41DB2B682J	CYLND CHIP R 6.8K J 1/8W	E1	
R47 ,48			RD41DB2B472J	CYLND CHIP R 4.7K J 1/8W		
R49 ,50			RD41DB2B101J	CYLND CHIP R 100 J 1/8W		
R51 ,52			RD41DB2B103J	CYLND CHIP R 10K J 1/8W		
R53 ,54			RD41DB2B223J	CYLND CHIP R 22K J 1/8W		
R55 ,56			RD41DB2B512J	CYLND CHIP R 5.1K J 1/8W		
R57 ,58			RD41DB2B123J	CYLND CHIP R 12K J 1/8W		
R59 ,60			RD41DB2B181J	CYLND CHIP R 180 J 1/8W		
R61 ,62			RD41DB2B472J	CYLND CHIP R 4.7K J 1/8W		
VR1 ,2			R12-3101-05	TRIMMING PNT. (22K)PB LEVEL	E1	
VR3 ,4			R12-3100-05	TRIMMING PNT. (10K)DK LVL/VCO		
D1			DLS1585	DIODE		
D1			RLS-73	DIODE		
D2			1S1555	DIODE		
D3			DLS1585	DIODE	E1	
D3			RLS-73	DIODE	E1	
D4			DLS1585	DIODE		
D4			RLS-73	DIODE		
IC1			BA3406L	IC(PREAMP FOR TAPE EQ X2)		
IC2			NR0860	IC(DOLBY)		
IC3			LA2220	IC(SK SIGNAL DETECT)	E1	
IC4			LA3365	IC(FM MPX)	E1	
IC5			KC-819	IC(TONE AMP X2)		
IC6			AN6556	IC(OP AMP X2)		
Q1			2SC2412K(S)	TRANSISTOR	E1	
Q2 ,3			2SC2412K	TRANSISTOR	E1	
Q4			DTA124EK	DIGITAL TRANSISTOR	E1	
Q5			DTC124EK	DIGITAL TRANSISTOR	E1	
TUNER ASS'Y (W02-0653-05)						
D1 -4			1S5110	DIODE		
D1 -4			1S553	DIODE		
D1 -4			1S1555	DIODE		
D5 -7			5VC321	DIODE		
D5 -7			1SV149	DIODE		
FET1			2SK163	FET		
FET2			2SK184	FET		
IC1			LA1135	IC(AM)		
TR1 -5		*	2SC2610	TRANSISTOR		
TR1 -5			2SC2714	TRANSISTOR		
TR1 -5			2SC2814	TRANSISTOR		
TR6			2SC2669	TRANSISTOR		
FM FRONT-END ASS'Y (W02-0708-05)						
TR1			3SK101	FET		
TR1			2SC2620	TRANSISTOR		
TR1			2SC2714	TRANSISTOR		
TR2		*	2SC2175	TRANSISTOR		

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TR3			2SC2995	TRANSISTOR		
<b>SCREW SET (N99-0099-05)</b>						
-			N09-0335-05	TAPPING SCREW (Ø5X6)		
-			N09-0366-05	HEX. BOLT (M5X20)		
-			N10-1050-46	HEX. NUT (M5)		
-			N14-0117-05	FLANGE NUT (M5)		
<b>CASSETTE MECHANISM ASS'Y (D40-0376-05)</b>						
3	1B		A53-0674-08	CASSETTE HOLDER		
9	3B		D03-0241-08	REEL DISK ASSY		
10	2B, 3B		D01-0073-08	FLYWHEEL ASSY		
11	3A		D03-0229-08	SLIDER ASSY (MAIN GEAR)		
12	2B		D10-1319-08	SLIDER ASSY (SWITCHING)		
13	2B		D10-1321-08	LEVER (TRIGGER STOP)		
14	2B		D10-1322-08	ARM (FF REW LOCK)		
15	2B		D10-1323-08	SLIDER (FF REW)		
16	2B		D10-1324-08	LEVER (FF REW OP)		
17	2A		D10-1651-08	ARM		
18	2A		D10-1326-08	SLIDER (TAKE UP GEAR PUSH)		
19	2B		D10-1328-08	ARM (PINCH ROLLER OP)		
20	3A		D10-1329-08	SLIDER ASSY (FF GEAR)		
21	3A		D10-1330-08	SLIDER ASSY (REW GEAR)		
22	3B		D10-1331-08	ARM (END DETECT.F)		
23	3A		D10-1332-08	ARM (END DETECT.R)		
24	3B		D10-1333-08	SLIDER ASSY (TAKEUP GEAR.F)		
25	3A		D10-1334-08	SLIDER ASSY (TAKEUP GEAT.R)		
26	3A		D10-1335-18	SLIDER (END SENSOR)		
27	3A		D10-1336-08	ARM (TRIGGER)		
28	1A		D10-1337-08	LEVER (SW OP)		
29	2A		D10-1338-08	SLIDER ASSY (PUSH)		
30	2A		D10-1340-08	LEVER (LIFT UP)		
31	1B		D10-1652-08	BRACKET ASSY (FF/REW)		
32	1B		D10-1654-08	LEVER (REW)		
33	1B		D10-1653-08	LEVER (FF)		
34	1B		D10-1344-08	SLIDER (PRØG CHANGE)		
35	1B		D10-1345-08	CASE LIFTER		
36	1A		D10-1346-08	SLIDER ASSY (PACK EJECT)		
37	1A		D10-1347-08	SLIDER (CASET DETECT)		
38	2A		D10-1348-08	LEVER (TIMING)		
39	2A		D10-1349-08	ARM (TAKEUP GEAR OP)		
40	3A		D10-1350-08	ARM (STOP)		
41	1B		D10-1530-08	SLIDER (MAIN)		
42	2B		D10-1531-08	ARM (FF/REW RELEASE)		
43	3B		D10-1532-08	HEAD PANEL ASSY		
44	2A		D10-1533-08	SLIDER ASSY (KEY OFF)		
45	2A		D10-1534-08	PLUNGER (KEY OFF)		
46	2A		D10-1535-18	SLIDER (TRIGGER ARM)		
47	2A		D10-1536-18	SLIDER ASSY (HALF/HEAD PUSH)		
48	3B		D13-0185-08	GEAR ASSY (FF)		
49	3A, 3B		D13-0186-08	GEAR (TAKEUP)		
50	3A		D13-0187-08	GEAR (FF TAKEUP)		
51	3A		D13-0188-08	CLUTCH ASSY (FF/REW)		
52	3A		D13-0189-08	GEAR (DEVICE, UPPER)		

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53	3A		D13-0190-08	GEAR (DEVICE, BOTTOM)		
54	3A		D13-0191-08	GEAR (DEVICE TRIGGER/STOP)		
55	2A		D13-0192-08	GEAR (TRIGGER/STOP SP)		
56	2A		D13-0193-08	GEAR (INVERTER)		
57	2A		D13-0194-08	REEL DISK ASSY (TAKEUP)		
58	2B		D13-0331-08	GEAR (MAIN)		
59	2A		D13-0309-08	GEAR (KEY OFF, CAM)		
60	2B		D14-0114-08	PINCH ROLLER ASSY(F)		
61	2A		D14-0115-08	PINCH ROLLER ASSY(R)		
62	3B		D14-0131-08	IDLER (HEAD PANEL)		
63	2B		D15-0244-18	PULLEY (INTER MEDIATE)		
64	1B		D13-0332-08	GEAR		
65	3B		D16-0109-18	BELT (MAIN)		
66	1A		D40-0349-08	MECHANISM ASSY (KEY OFF)		
75	2B		G01-1560-08	TENSION SPRING (FF/REW LOCK)		
76	2B		G01-1561-08	TORSION COIL SPRING (CONTROL)		
77	2B		G01-1562-08	TORSION COIL SPRING (TRGR/STOP)		
78	3A		G01-1564-18	TENSION SPRING (FF/REW GEAR)		
79	3B		G01-1565-08	TENSION SPRING (TAKEUP GEAR)		
80	2A		G01-1566-08	TENSION SPRING (TRIGGER STOP)		
81	2A		G01-1567-08	COMPRESSION SPRING (END DETECT)		
82	2A		G01-1740-08	TENSION SPRING (HALF/HEAD PNL)		
83	2A		G01-1571-08	TENSION SPRING (LIFT UP LEVER)		
84	1B		G01-1572-08	TENSION SPRING (FF/REW LEVER)		
85	1A		G01-1573-08	TORSION COIL SPRING (INVERTER)		
86	1B		G01-1574-08	TENSION SPRING (CASET DETECT)		
87	2A		G01-1575-08	TENSION SPRING (TIMING LEVER)		
88	2B		G01-1734-08	TENSION SPRING (FF RELEASE ARM)		A
89	3B		G01-1735-08	TENSION SPRING (HEAD PANEL)		
90	1A		G01-1736-08	TENSION SPRING (POWER SWITCH)		
91	2A		G01-1737-08	TORSION COIL SP (KEY OFF GEAR)		
92	2A		G01-1738-08	TORSION COIL SPRING (KEY OFF)		
93	1A		G01-1739-08	COMPRESSION SPRING (PLUNGER)		
94	2A		G01-1569-08	TENSION SPRING (PUSH LEVER)		
96	2B		G02-0174-08	FLAT SPRING (PB HEAD)		
97	2B		G09-0047-08	FORMED WIRE (HEAD SW)		
98	2B		G09-0048-08	FORMED WIRE (FF/REW SP)		
99	2B		G09-0049-08	FORMED WIRE (PINCH ROLLER)		
100	3A		G09-0050-08	ROD (END SENSOR PUSH)		
101	1A		G09-0051-08	FORMED WIRE (PACK EJECT)		
102	1A		G13-0167-08	CUSHION		
103	3A		G16-0112-08	SHEET (SLIP)		
110	2B		J19-2560-08	BRACKET (PLUNGER)		A
111	2B		J25-4472-08	PRINTED WIRING BOARD (HEAD)		A
111	1B		J25-5588-08	PRINTED WIRING BOARD (HEAD)		B
112	1A	*	J32-0306-08	BOSS		
113	1A		J25-4671-08	PRINTED WIRING BOARD (BASE)		
114	2A		J31-0242-08	COLLAR (INVERTER GEAR)		
115	2A		J31-0243-08	COLLAR (END DETECT)		
116	2B		J90-0149-08	GUIDE (TAPE)		
117	1A		J90-0150-18	SLIDER (PACK)		
125	2B		L90-0001-08	COIL ASSY (T)		A
126	2B		L92-0015-08	CORE		A

E: Scandinavia &amp; Europe K: USA P: Canada W: Europe

U: PX (Far East, Hawaii) T: England M: Other Areas

UE: AAFES (Europe) X: Australia

E : KRC-646L E1 : KRC-646D

E2 : KRC-646L France made

E3 : KRC-646L Italy made

T : KRC-646L

## PARTS LIST

× New Parts

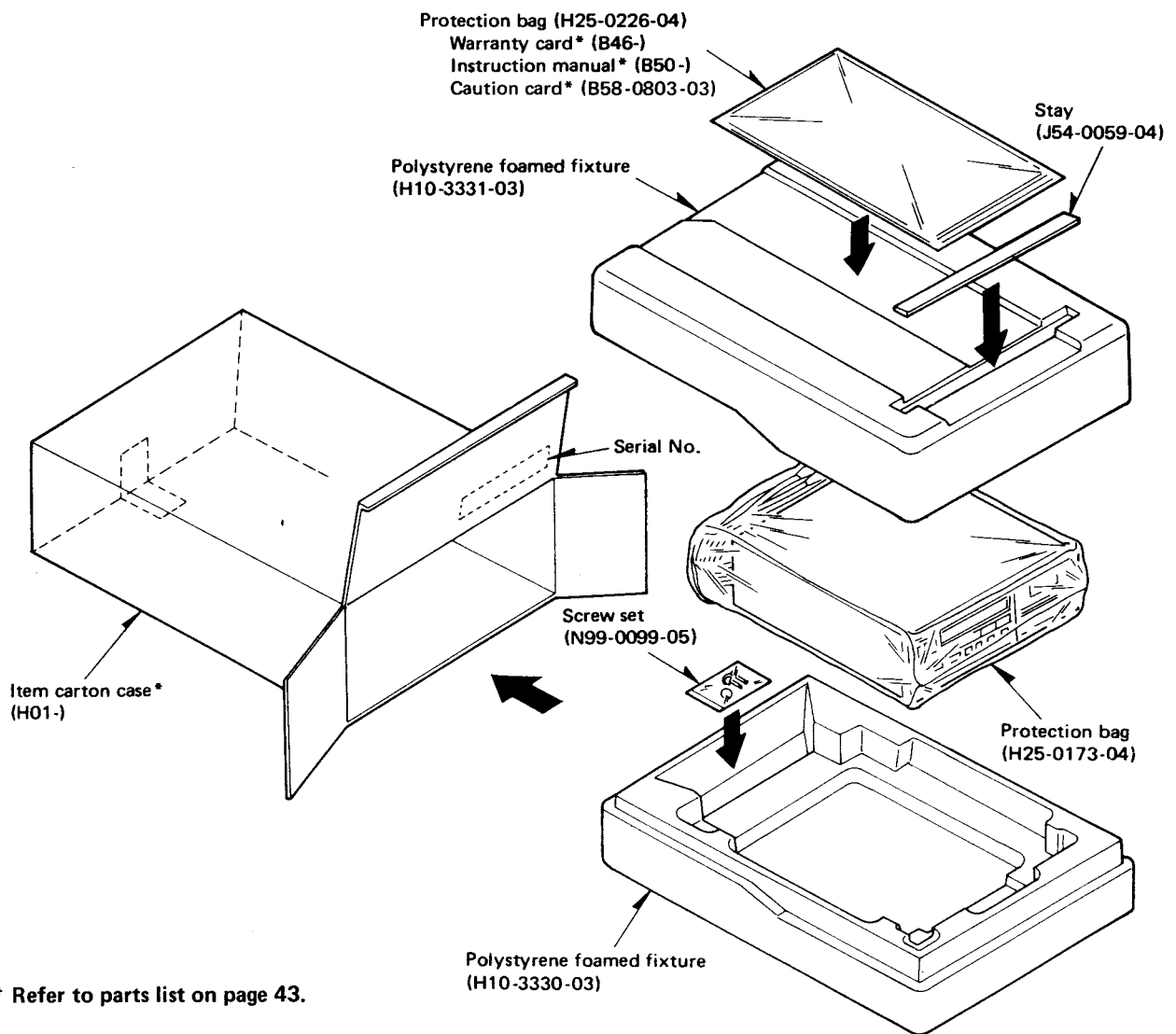
Parts without Parts No. are not supplied.

Les articles non mentionnés dans le Parts No. ne sont pas fournis.

Teile ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕向	Re- marks 備考
138	2A		N19-1020-08	FLAT WASHER		
139	2B		N19-1015-08	FLAT WASHER (Ø0.85X2.8X0.25)		
140	3A, 2B		N19-0894-08	FLAT WASHER (Ø1.2X3.0X0.25)		
141	2B		N19-0895-08	FLAT WASHER (FLYWHEEL)		
142	2B		N19-0896-08	FLAT WASHER (REEL ASSY, LOCK PLT)		
143	2A, 2B		N19-0897-08	FLAT WASHER (PINCH ROLLER ASSY)		
144	3A		N19-0898-08	FLAT WASHER (GEAR 59)		
145	1B		N19-0899-08	FLAT WASHER (PC PLATE 91)		
146	2A, 2B		N19-0901-08	FLAT WASHER (Ø2.0X3.5X0.2)		
147	1A		N19-0941-08	WASHER (Ø3.6X8X0.2)		
148	2A, 2B		N19-0942-08	FLAT WASHER (Ø1.55X/3.5X0.5)		
149	1B		N29-0082-08	E TUPE RETAINING RING (Ø1.5)		
150	2A, 3B		N24-3012-46	E TYPE RETAINING RING (Ø1.2)		
151	1A		N24-3015-46	E TYPE RETAINING RING (Ø1.5)		
152	2A, 1B		N24-3020-46	E TYPE RETAINING RING (Ø2)		
153	2A		N24-3025-45	E TYPE RETAINING RING (Ø2X5)		
A	2B		N09-1402-08	SCREW (COLLER)		
C	2B		N09-1404-08	SCREW (M2X5) TAPE GUIDE 31		
D	2A, 2B		N09-1740-08	SCREW (M2X2.5) MOTOR TIMING LVR		
E	2B		N09-1406-08	SCREW (M2X4) PB HEAD 33		
F	2A, 2B		N09-1407-08	SCREW (Ø2X3) PM BRCKT 70, PCB 20		
G	3A		N09-1408-08	SCREW (M2X3.5) MG PLT ASSY 40		
H	1A		N09-1409-08	SCREW (Ø2X4) LIFTER 93, BRCKT 88		
P	2B		N09-1294-05	SCREW (Ø2X6)		
Q	1A		N09-1525-08	SCREW (Ø2X2.5)		
R	1B		N09-1643-08	SCREW (M2.6X4.5)		
Y	2A	*	N09-1403-08	SCREW (M1.7X3.5)		
S1	2A		S46-1081-05	LEAF SWITCH (MUTING)		
S2	1B		S31-3006-08	SLIDE SWITCH		B
160	2B		T31-0040-08	PLAYBACK HEAD		
161	1B		T42-0090-18	DC MOTOR ASSY		
162	1A		T94-0089-08	SOLENOID		

## PACKING



\* Refer to parts list on page 43.

## SPECIFICATIONS

**FM Tuner Section**

Frequency Range .....	87.5 ~ 108.0 MHz
Usable Sensitivity (DIN) .....	1.6 $\mu$ V/75 ohms
Stereo Sensitivity (S/N = 46 dB) .....	2.8 $\mu$ V/75 ohms
Frequency Response ( $\pm 4.5$ dB) .....	30 ~ 15,000 Hz
Signal to Noise Ratio (IEC-A) .....	68 dB
Selectivity (DIN) .....	65 dB
Stereo Separation (1 kHz) .....	40 dB
19 kHz Carrier Leakage .....	50 dB

**MW Tuner Section**

MW Frequency Range .....	522 ~ 1,611 kHz
MW Usable Sensitivity .....	30 $\mu$ V

**LW Tuner Section**

LW Frequency Range .....	153 ~ 281 kHz
LW Usable Sensitivity .....	60 $\mu$ V

**Cassette Deck Section**

Tape Speed .....	4.76 cm/s
Wow and Flutter (WRMS) .....	0.12% (WRMS)
Wow and Flutter (DIN) .....	0.2% (W-PEAK)
Fast Winding Time (C-60) .....	110 sec
Frequency Response (120 $\mu$ s) .....	40 Hz ~ 14 kHz (+4 dB, -6 dB)
(70 $\mu$ s) .....	40 Hz ~ 16 kHz (+4 dB, -6 dB)
Stereo Separation (1 kHz) .....	37 dB
Signal to Noise Ratio (IEC-A)	
NR OFF .....	52 dB
Dolby B ON .....	62 dB

**Audio Section**

Maximum Output Power (1 kHz, 4 ohms) .....	20 W + 20 W
Rated Output Power (10% THD, 1 kHz, 4 ohms) .....	15 W + 15 W
(1% THD, 1 kHz, 4 ohms) .....	10 W + 10 W
Tone Action .....	Bass: 100 Hz $\pm 10$ dB
	Treble: 10 kHz $\pm 10$ dB
Preout Level/Impedance .....	300 mV/180 ohms

**General**

Operating Voltage (GND) .....	14.4 V (11 ~ 16 V)
Current Consumption .....	4.5 A at Rated Power
Dimensions (W x H x D) .....	188 x 58 x 170 mm
	(7-3/8 x 2-5/16 x 6-11/16 in.)
Body Size (W x H x D) .....	180 x 52 x 155 mm
	(7-1/16 x 2-1/16 x 6-1/8 in.)
Weight .....	2.3 kg (5.06 lb)

**Note :**

Component and circuitry are subject to modification to insure best operation under differing local conditions. This manual is based on, the Europe (E) standard, and provides information on regional circuit modification through use of alternate schematic diagrams, and information on regional component variations through use of parts list.

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